
SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1)

DATA RESPONSE, SET 1A (Responses to Data Requests: 1 through 91)

Submitted by
CITY AND COUNTY OF SAN FRANCISCO

July 6, 2004



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**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
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Technical Area: Air Quality

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BACKGROUND

In the application for certification (AFC), the City of San Francisco (the City) specifies that offsets for oxides of nitrogen (NO_x) and volatile organic compound (VOC) will be acquired from owners of emission reduction credits (ERC) within the city. The City commits to provide the list of ERCs no later than October 7, 2004, when the Preliminary Determination of Compliance (PDOC) will be released. Because staff needs to provide an analysis on whether such offsets are appropriate and effective in mitigating the project emission increases, an earlier public release date will be helpful.

DATA REQUEST

1. Please consider an earlier release of the offset package, e.g., by the end of August, 2004.

Response: The City will release the offset package as soon as confidential negotiations are completed. The City is pursuing an agreement with potential offset providers and is attempting to achieve an agreement as quickly as possible consistent with City contracting requirements and with the City's desire to obtain favorable contract terms.

BACKGROUND

In the AFC, the City commits to develop a PM₁₀ mitigation plan (AFC, pp. 8.1-48); however, no specific detail about this plan is provided.

DATA REQUEST

2. Please provide a detailed discussion of the goals of the PM₁₀ mitigation plan.

Response: The overall goal of the SFERP PM₁₀ mitigation plan is to improve air quality in Southeast San Francisco, with an emphasis on addressing the PM₁₀ emissions from the SFERP. The City's PM₁₀ mitigation plan will be developed in combination with a community benefits package that may address more broadly air quality, public health and other issues of concern to the community. The City intends to work with the affected community to achieve this goal through mitigation opportunities that can be implemented within a reasonable time, that will produce benefits that can be monitored or measured, that are within the City's control, that provide benefits consistent with costs, and that would benefit from the City's participation.

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3. Please discuss the progress to-date on the PM10 mitigation plan and provide a schedule for its completion.

Response: The City is organizing a process to involve potentially affected communities in development of ideas for mitigation and community benefits that may be pursued. As an initial step, the City has met with various members of the community. Based on input from these meetings and existing materials associated with the Potrero 7 application, the City and its consultants have developed an extensive list of potential mitigation opportunities and a proposed method for evaluating the various mitigation opportunities that will allow the City and the community to select the combination of mitigation measures that best meets the goals and criteria outlined in Data Response 2 above. The City anticipates holding two workshops over the summer. The first is scheduled for July 13. In that workshop, the City will present an overview of the project. Then, using a break-out group workshop format, the City will seek community input on the preliminary list of mitigation measures and evaluation criteria. After the workshop, the City and its consultants will undertake additional analysis to assess a revised list of potential mitigation measures using the criteria, as revised based on the input received. The outcome of this assessment will be presented to the community for input in a workshop to be held in August. Based on this work and the input from the community, the City intends to present a proposed set of mitigation measures to the San Francisco Public Utilities Commission and the Commission on the Environment for their consideration at public meetings in late August or early September in order to finalize a list of recommended measures.

4. Because sulfur oxides (SOx) and ammonia have the potential to contribute to fine particulate (PM10 and PM2.5) formation, please describe whether the PM10 plan would contain any element to mitigate SOx and ammonia-derived fine particulates.

Response: As stated in response to question 2, the City's PM10 mitigation plan will be developed in combination with a community benefits package that may address air quality, public health and other issues of concern to the community more broadly. To this end, all impacts of the project may be considered in developing the mitigation program, consistent with input from the community.

BACKGROUND

Applicant needs to provide background information on the Cumulative Air Impact Analysis.

DATA REQUEST

5. Please provide the progress for the cumulative air quality impact analysis following the protocol proposed in the AFC, Appendix 8.1G and a schedule for when this information will be completed.

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Response: The emissions data analysis portion of the cumulative air quality impact analysis has been completed. The applicant has received from the BAAQMD emissions data and fuel use for the Potrero and Hunters Point power plants for calendar years 2000 through 2002 and recently submitted a public information request for similar information for calendar year 2003. Finally, the applicant has requested and received from the BAAQMD information regarding facilities within 6 miles (10 km) of the proposed SFERP that have Authorities to Construct but have not yet begun operation and therefore would not be represented in existing background ambient monitoring data.

Applicant will submit the cumulative impacts analysis as soon as possible.

BACKGROUND

The AFC identifies that a selective catalytic reduction (SCR) system will be utilized to control nitrogen oxide (NOx) emissions to 2.5 part per million (ppm) with an ammonia slip of 10 ppm corrected to 15% excess oxygen (@15%O₂).

DATA REQUEST

6. Please provide vendor certification that ammonia slip lower than 10 ppm is not technically and cost-effectively possible for these combustion turbines.

Response: SFPUC does not possess any vendor certification statements indicating that ammonia slip lower than 10 ppm is not technically feasible or is not cost-effective.

BACKGROUND

The AFC identifies both SCR and SCONOX technologies as technologically feasible for the project (AFC, Appendix E, pp. E-9), but the SCONOX technology does not offer any benefits and would have higher cost than SCR (\$18,671 per ton of NOx versus \$7,253 per ton of NOx). Therefore, the City selected SCR as the best available control technology (BACT) for the project. It is unclear whether the cost effectiveness analysis has taken into account that the SCONOX can operate at less than 2 ppm with no ammonia slip, and exhibits lower CO and VOC emissions than SCR.

DATA REQUEST

7. Please provide detailed discussions about why the City believes that SCONOX offers no benefits over the SCR control technology.

Response: As discussed in the BACT analysis included in the AFC, the Applicant does not believe that either SCR or SCONOX will cause significant energy, economic or environmental impacts, and thus neither can be eliminated as viable control alternatives. The concern remains regarding the long-term effectiveness of SCONOX as a control technology as the technology has not been demonstrated on the turbines.

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used in this project. Further, Redding Electric Utility, which currently uses SCONOx technology on its 43 MW Alstom Power Model GTX 100 CTG at its Redding power plant, has found that the SCONOx-equipped unit must be taken offline and its catalyst removed and washed at least twice per year to maintain control efficiency. The Applicant does not believe this performance is acceptable for a plant that is intended to be available to replace existing generating units that are needed to maintain reliability, i.e. "reliability must run" (RMR) facilities.

8. Please provide the cost-effectiveness calculations for SCONOx and SCR as cited in the ONSITE SYCOM Energy Corporation report.

Response: The cost-effectiveness calculations are shown in the spreadsheet that is included as Attachment AQ-8.

BACKGROUND

The initial commissioning of the project may experience emissions that exceed the limits that would be required during normal operation; however, no mitigation is proposed.

DATA REQUEST

9. Please provide discussion for any proposed mitigation during the commissioning period.

Response: The City is not proposing additional mitigation to specifically address the commissioning period. The AFC included a demonstration that NOx and CO emissions during commissioning will not result in violations of any state or federal ambient air quality standards. Further, as with all BAAQMD permits, the SFERP permit will require that all emissions during commissioning must accrue toward the rolling 12-month emission limits that will be included in the permit. As offsets and mitigation will be provided for permitted annual emissions, there will be no excess unmitigated emissions from the project during commissioning.

BACKGROUND

Table 8.1D-4 of the AFC identifies that construction of the facility will result in impacts of 14.9 and 6.4 $\mu\text{g}/\text{m}^3$ for PM10 and PM2.5, respectively. There are no discussions of the inputs or assumptions used in the model for PM10 and PM2.5.

The model predicts that the impacts for PM10 and PM2.5 would be greatest along the fence line of the facility. Since the public has access to the property fence, additional mitigation beyond those proposed in the AFC may be required to mitigate these impacts.

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DATA REQUEST

10. Please provide detailed descriptions and assumptions used to separate the PM10 and PM2.5 source inputs to the model.

Response: Detailed construction emissions calculations are provided in Attachment 8.1D-1 (Appendix 8.1D) of the AFC. These calculations assume that all combustion PM10 is in the form of PM2.5. Fugitive dust PM2.5 was calculated using USEPA emission factors. The PM2.5-related calculations from the appendix are provided again for convenience in Attachment AQ-10.

11. Please provide additional mitigation steps that the City will take to ensure that the construction of the project will not cause adverse impacts to the public in the adjacent area.

Response: As set forth in Table 8.6-1 of the AFC, the Applicant will employ dust mitigation measures during construction, consistent with the requirements of the City Environmental Code Chapter 10 and Department of Public Works, Order No. 171,378, to ensure that project construction will not cause adverse impacts to the public in nearby areas. Further, the City anticipates that the CEC will require its standard construction mitigation conditions as set forth below to address these mitigation requirements more specifically. The City expects the SFERP project manager to be responsible for ensuring compliance with applicable dust mitigation measures.

- a) All unpaved roads and disturbed areas in the project and linear construction sites will be watered until sufficiently wet to ensure that no visible dust plumes leave the project site.
- b) Vehicle speeds will be limited to 15 miles per hour within the construction site.
- c) All construction equipment vehicle tires will be washed or cleaned free of dirt prior to entering paved roadways.
- d) Gravel ramps will be provided at the tire washing/cleaning station.
- e) All entrances to the construction site will be graveled or treated with water or dust soil stabilization compounds.
- f) Construction areas adjacent to any paved roadway will be provided with sandbags to prevent run-off to the roadway.
- g) All paved roads within the construction site will be swept twice daily when construction activity occurs.
- h) At least the first 500 feet of any public roadway exiting from the construction site will be swept at least twice daily on days when construction activity occurs, and twice daily on any other day when dirt or runoff from the construction site is visible on the public roadways.

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- i) All soil storage piles and disturbed areas that remain inactive for longer than 10 days will be covered, or be treated with appropriate dust suppressant compounds.
- j) All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- k) Wind erosion control techniques such as windbreaks, water, chemical dust suppressants, and vegetation will be used on all construction areas that may be disturbed. Any windbreaks used will remain in place until the soil is stabilized or permanently covered with vegetation.
- l) Any construction activities that may cause fugitive dust in excess of the visible emission limits specified in Condition AQ-nn will cease when the wind exceeds 25 miles per hour unless water, chemical dust suppressants, or other measures have been applied to reduce dust such that no visible dust leaves the project site.

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ATTACHMENT AQ-8

Cost Effectiveness Calculations

ATTACHMENT AQ-8: 1999 SCR Cost Comparison

				5 MW Class	25 MW Class	50 MW Class	150 MW Class
Turbine Model				Solar Centaur 50 4.2 MW	GE LM2500 23 MW	GE LM6000 47.5 MW	GE Frame 7FA 161 MW
Turbine Output							
Direct Capital Costs (DC)							
Purchased Equip. Cost (PE)		Source					
Basic Equipment (A)		MHIA		\$ 240,000	\$ 660,000	\$ 733,782	\$ 210,000
Ammonia injection skid and storage	0.00 x A	MHIA		included	included	included	included
Instrumentation	0.00 x A	OAQPS		included	included	included	included
Taxes and freight	0.08 A x B	OAQPS		\$ 19,015	\$ 52,746	\$ 58,703	\$ 169,530
PE Total				\$ 256,704	\$ 712,066	\$ 792,484	\$ 2,288,649
Direct Installation Costs (DI)							
Foundation & supports	0.08 x PE	OAQPS		\$ 20,536	\$ 56,965	\$ 63,399	\$ 183,092
Handling and erection	0.14 x PE	OAQPS		\$ 35,939	\$ 99,689	\$ 110,948	\$ 320,411
Electrical	0.04 x PE	OAQPS		\$ 10,268	\$ 28,483	\$ 31,699	\$ 91,546
Piping	0.02 x PE	OAQPS		\$ 5,134	\$ 14,241	\$ 15,850	\$ 45,773
Insulation	0.01 x PE	OAQPS		\$ 2,567	\$ 7,121	\$ 7,925	\$ 22,886
Painting	0.01 x PE	OAQPS		\$ 2,567	\$ 7,121	\$ 7,925	\$ 22,886
DI Total				\$ 77,011	\$ 213,620	\$ 237,745	\$ 686,595
DC Total				\$ 333,715	\$ 925,686	\$ 1,030,229	\$ 2,975,244
Indirect Costs (IC)							
Engineering:				\$ 25,670	\$ 71,207	\$ 79,248	\$ 100,000
Construction and field expenses				\$ 12,835	\$ 35,603	\$ 39,624	\$ 114,432
Contractor fees				\$ 25,670	\$ 71,207	\$ 79,248	\$ 228,865
Start-up				\$ 5,134	\$ 14,241	\$ 15,850	\$ 45,773
Performance testing				\$ 2,567	\$ 7,121	\$ 7,925	\$ 22,886
Contingencies				\$ 7,701	\$ 21,362	\$ 23,775	\$ 68,659
IC Total				\$ 79,578	\$ 220,740	\$ 245,670	\$ 580,616
Total Capital Investment (TCI = DC + IC)				\$ 413,293	\$ 1,146,426	\$ 1,275,899	\$ 3,555,860
Direct Annual Costs (DAC)							
Operating Costs (O)	24 hrs/day, 7 days/wk, 50 wks/yr						
Operator	0.5 hrs/shift \$25/hr	OAQPS		\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Supervisor	15% of Operator	OAQPS		\$ 1,969	\$ 1,969	\$ 1,969	\$ 1,969
Maintenance Costs (M)							
Labor	0.5 hrs/shift \$25/hr	OAQPS		\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Material	100% of labor cost	OAQPS		\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Utility Costs							
Perf Loss	0.50%						
Electricity cost	0.06 (\$/kwh) performance penalty variable			\$ 10,584	\$ 57,960	\$ 119,700	\$ 405,720
Catalyst replacement				\$ 10,352	\$ 56,690	\$ 117,077	\$ 396,833
Catalyst disposal				\$ 388	\$ 2,126	\$ 4,391	\$ 14,881
Ammonia	\$360/ton * tons NOx*17/46			\$ 3,510	\$ 14,820	\$ 9,965	\$ 108,257
NH3 injection skid				\$ 5,040	\$ 7,560	\$ 11,228	\$ 77,589
Total DAC				\$ 71,218	\$ 180,500	\$ 303,705	\$ 1,044,624
Indirect Annual Costs (IAC)							
Overhead	60% of O&M			\$ 24,806	\$ 24,806	\$ 24,806	\$ 24,806
Administrative	0.02 x TCI			\$ 8,266	\$ 22,929	\$ 25,518	\$ 71,117
Insurance	0.01 x TCI			\$ 4,133	\$ 11,464	\$ 12,759	\$ 35,559
Property tax	0.01 x TCI			\$ 4,133	\$ 11,464	\$ 12,759	\$ 35,559
Capital recovery	10% interest rate, 15 yr period						
	0.13 x TCI			\$ 53,037	\$ 147,119	\$ 163,734	\$ 456,316
Total IAC				\$ 94,375	\$ 217,782	\$ 239,576	\$ 623,357
Total Annual Cost (DAC + IAC)				\$ 165,593	\$ 398,282	\$ 543,281	\$ 1,667,981
NOx Emission Rate (tons/yr) at 25 ppm						88.2	
NOx Removed (TPY) at 2.5 ppm						74.9	
Cost Effectiveness (\$/ton)						7,253.41	
Electricity Cost Impact (c/kwh)						0.381	
Increased natural gas use						20,033	135,800 MCF
	1017 Btu/scf					20,373	138,109 MMBtu

1999 SCONOX Cost Comparison

				5 MW Class	25 MW Class	50 MW Class	150 MW Class
Turbine Model				Solar Centaur 50	GE LM2500	GE LM6000	GE Frame 7FA
Turbine Output				4.2 MW	23 MW	47.5 MW	161 MW
Direct Capital Costs (DC)							
Purchased Equip. Cost (PE)							
Basic Equipment (A)		Source	Goalline	\$ 620,000	\$ 1,960,000	\$ 2,759,107	\$ 7,700,000
Ammonia injection skid and storage	0.00 x A	Goalline	Goalline	included	included	included	included
Instrumentation	0.00 x A	OAQPS	OAQPS	included	included	included	included
Taxes and freight	0.08 A x B	OAQPS	OAQPS	\$ 49,760	\$ 157,105	\$ 220,729	\$ 612,238
PE Total				\$ 671,760	\$ 2,120,916	\$ 2,979,836	\$ 8,265,208
Direct Installation Costs (DI)							
Foundation & supports	0.08 x PE	OAQPS	OAQPS	\$ 53,741	\$ 169,673	\$ 238,387	\$ 661,217
Handling and erection	0.14 x PE	OAQPS	OAQPS	\$ 94,046	\$ 296,928	\$ 417,177	\$ 1,157,129
Electrical	0.04 x PE	OAQPS	OAQPS	\$ 26,870	\$ 84,837	\$ 119,193	\$ 330,608
Piping	0.02 x PE	OAQPS	OAQPS	\$ 13,435	\$ 42,418	\$ 59,597	\$ 165,304
Insulation	0.01 x PE	OAQPS	OAQPS	\$ 6,718	\$ 21,209	\$ 29,798	\$ 82,652
Painting	0.01 x PE	OAQPS	OAQPS	\$ 6,718	\$ 21,209	\$ 29,798	\$ 82,652
DI Total				\$ 201,528	\$ 636,275	\$ 893,951	\$ 2,479,562
DC Total				\$ 873,288	\$ 2,757,191	\$ 3,873,786	\$ 10,744,770
Indirect Costs (IC)							
Engineering:				\$ 67,176	\$ 212,092	\$ 297,984	\$ 826,521
Construction and field expenses				\$ 33,588	\$ 106,046	\$ 148,992	\$ 413,260
Contractor fees				\$ 67,176	\$ 212,092	\$ 297,984	\$ 826,521
Start-up				\$ 13,435	\$ 42,418	\$ 59,597	\$ 165,304
Performance testing				\$ 6,718	\$ 21,209	\$ 29,798	\$ 82,652
Contingencies				\$ 20,153	\$ 63,627	\$ 89,395	\$ 247,956
IC Total				\$ 208,246	\$ 657,484	\$ 923,749	\$ 2,562,214
Total Capital Investment (TCI = DC + IC)				\$ 1,081,534	\$ 3,414,675	\$ 4,797,535	\$ 13,306,985
Direct Annual Costs (DAC)							
Operating Costs (O) 24 hrs/day, 7 days/wk, 50 wks/yr							
Operator	0.5 hrs/shift \$25/hr	OAQPS	OAQPS	\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Supervisor	15% of Operator	OAQPS	OAQPS	\$ 1,969	\$ 1,969	\$ 1,969	\$ 1,969
Maintenance Costs (M)							
Labor	0.5 hrs/shift \$25/hr	OAQPS	OAQPS	\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Material	100% of labor cost	OAQPS	OAQPS	\$ 13,125	\$ 13,125	\$ 13,125	\$ 13,125
Utility Costs							
Perf Loss	0.50%						
Electricity cost	0.06 (\$/kwh) performance penalty variable			\$ 10,584	\$ 57,960	\$ 119,700	\$ 428,400
Catalyst replacement (note 2)				\$ 25,880	\$ 106,295	\$ 219,522	\$ 785,655
Catalyst disposal	precious metal recovery: 1/3 replacement cost			\$ (8,618)	\$ (35,396)	\$ (73,174)	\$ (261,623)
H2 carrier steam (note 3)				\$ 19,686	\$ 107,806	\$ 222,643	\$ 796,824
H2 reforming (note 4)				\$ 1,916	\$ 10,495	\$ 21,674	\$ 77,589
H2 skid demand (note 5) (0.6 kW/MW capacity)				\$ 1,270	\$ 6,955	\$ 14,364	\$ 51,408
Total DAC				\$ 92,062	\$ 295,459	\$ 566,073	\$ 1,919,597
Indirect Annual Costs (IAC)							
Overhead	60% of O&M			\$ 24,806	\$ 24,806	\$ 24,806	\$ 24,806
Administrative	0.02 x TCI			\$ 21,631	\$ 68,293	\$ 95,951	\$ 266,140
Insurance	0.01 x TCI			\$ 10,815	\$ 34,147	\$ 47,975	\$ 133,070
Property tax	0.01 x TCI			\$ 10,815	\$ 34,147	\$ 47,975	\$ 133,070
Capital recovery	10% interest rate, 15 yr period						
	0.13 x TCI			\$ 138,791	\$ 438,198	\$ 615,658	\$ 1,707,659
Total IAC				\$ 206,859	\$ 599,592	\$ 832,366	\$ 2,264,744
Total Annual Cost (DAC + IAC)				\$ 298,920	\$ 895,050	\$ 1,398,439	\$ 4,184,341

NOx Emission Rate (tons/yr) at 25 ppm

88.2

NOx Removed (TPY) at 2.5 ppm

90% removal efficiency

74.9

Cost Effectiveness (\$/ton)

18,670.74

Electricity Cost Impact (c/kwh)

0.981

Increased natural gas use

1017 Btu/scf

35,994

36,606

244,000 MCF

248,148 MMBtu

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ATTACHMENT AQ-10

PM 2.5 Calculations

Daily Fugitive Dust Emissions (peak months)									
Equipment	Number of Units	Daily Process Rate Per Unit	Total Process Rate	Units	PM2.5 Emission Factor(1) (lbs/unit)	PM10 Emission Factor(1) (lbs/unit)	Control Factor(1) (%)	PM2.5 Emissions (lbs/day)	PM10 Emissions (lbs/day)
Backhoe	0	882.0	0.0	tons	5.305E-05	0.0015	0%	0.00	0.00
Grader	1	21.0	21.0	vmt	0.0193297	0.2754	92%	0.03	0.45
Dozer	1	7.0	7.0	hr	0.23	0.4194	0%	1.62	2.94
Scraper - Excavation	1	7.0	7.0	hr	0.23	0.4194	0%	1.62	2.94
Scraper - Unpaved Road Travel	1	10.6	10.6	vmt	0.53	3.4638	92%	0.44	2.86
Loader - Excavation	0	735.0	0.0	tons	2.827E-05	0.0001	0%	0.00	0.00
Loader - Unpaved Road Travel	0	1.3	0.0	vmt	0.29	1.9201	92%	0.00	0.00
Water Truck Unpaved Road Travel	1	9.5	9.5	vmt	0.44	2.8400	92%	0.32	2.11
Forklift Unpaved Road Travel	0	9.5	0.0	vmt	0.26	1.7100	92%	0.00	0.00
Dump Truck Unpaved Road Travel	1	5.6	5.6	vmt	0.46	2.9806	92%	0.20	1.29
Dump Truck Unloading	1	735.0	735.0	tons	2.827E-05	0.0001	0%	0.02	0.07
3/4 ton Truck Unpaved Road Travel	1	11.4	11.4	vmt	0.15	0.9947	92%	0.13	0.88
3 ton Truck Unpaved Road Travel	1	5.7	5.7	vmt	0.22	1.4328	92%	0.10	0.63
Fuel Truck Unpaved Road Travel	1	0.1	0.1	vmt	0.33	2.1349	92%	0.00	0.02
Windblown Dust (active construction area)	N/A	573,830.8	573,830.8	sq.ft.	6.728E-06	1.682E-05	92%	0.30	0.75
Worker Gravel Road Travel	192	0.1	21.9	vmt	0.12	0.7705	92%	0.20	1.31
Delivery Truck Gravel Road Travel	13	0.1	1.5	vmt	0.35	2.3088	92%	0.04	0.27
Delivery Truck Unpaved Road Travel	13	0.1	1.0	vmt	0.46	2.9806	92%	0.04	0.23
Total =								5.06	16.73

Notes:

(1) See notes for fugitive dust emission calculations.

Annual Fugitive Dust Emissions					
Activity	Average Daily PM2.5 Emissions(1) (lbs/day)	Average Daily PM10 Emissions(1) (lbs/day)	Days per Year	Annual PM2.5 Emissions (tons/yr)	Annual PM10 Emissions (tons/yr)
Construction Activities	3.47	11.67	240	0.42	1.40
Windblown Dust	0.22	0.55	365	0.04	0.10
Total =				0.46	1.50

Notes:

(1) Based on average of daily emissions during peak 12-month construction period.

Notes - Fugitive Dust Emission Calculations

Wind erosion of active construction area - 'Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for South Coast AQMD by Midwest Research Institute, March 1996

Level 2 Emission Factor =	0.011 ton/acre-month
Construction Schedule =	30 days/month
=	0.7 lbs/acre-day
=	1.682E-05 PM10 lbs/scf-day
	6.728E-06 PM2.5 lbs/scf-day

Material Unloading - Source: AP-42, p. 13.2.4-3, 1/95

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$	
k = particle size constant =	0.35 for PM10
k = particle size constant =	0.11 for PM2.5
U = average wind speed =	2.81 m/sec (based on project area wind data)
=	6.29 mph
M = moisture content =	15.0% (SCAQMD CEQA Handbook, Table A9-9-G-1, moist soil)
E = PM10 emission factor =	0.0001 lb/ton
E = PM2.5 emission factor =	0.00003 lb/ton

Loader Unpaved Road Travel - Source: AP-42, Section 13.2.2, 12/03

$E = (k)[(s/12)^{0.9}]/[(W/3)^{0.45}]$	
k = particle size constant =	1.5 for PM10
k = particle size constant =	0.23 for PM2.5
s = surface silt content =	8.50 (AP-42, Table 13.2.2-1, 12/03, construction haul route)
W = avg. vehicle weight =	10.35 tons (avg. of loaded and unloaded weights, 966F loader, Caterpillar Performance Handbook, 10/97)
E = PM10 emission factor =	1.92 lb PM10/VMT
E = PM2.5 emission factor =	0.29 lb PM2.5/VMT
Soil Density =	1.05 ton/yd ³ (Caterpillar Performance Handbook, 10/89)
Loader Bucket Capacity =	5 yd ³ (966F loader, Caterpillar Performance Handbook, 10/97)
=	5.25 ton/load
Daily Soil Transfer Rate =	735 ton/day (operating 7 hrs/day)
Daily Loader Trips =	140 loading trips/day
Loading Travel Distance =	50 ft/load (estimated)
Daily Loader Travel Distance =	7,000 ft/day
=	1.3 mi/day

Notes - Fugitive Dust Emission Calculations

Backhoe Trenching - Source: AP-42, Table 11.9-1 (dragline operations), 7/98

$$E = (0.75)(0.0021)(d^{0.7})/(M^{0.3})$$

d = drop height = 3 ft (estimated)
M = moisture content = 15.0% (SCAQMD CEQA Handbook, Table A9-9-G-1, moist soil)
E = PM10 emission factor = 0.0015 PM10 lb/ton
E = PM2.5 emission factor = 0.0001 PM2.5 lb/ton
Backhoe Excavating Rate = 120.0 yd3/hr (based on 1 yd3 bucket on a 416C backhoe and a 30 sec. Cycle time)
= 840 yd3/day for 1 backhoe @ 7 hrs/day of operation
Soil Density = 1.0500 ton/yd3 (Caterpillar Performance Handbook, 10/89)
Daily Soil Transfer Rate = 882.0000 ton/day (estimated)

Unpaved Road Travel - Source: AP-42, Section 13.2.2, 12/03.

$$E = (k)[(s/12)^{0.9}(W/3)^{0.45}]$$

k = particle size constant = 1.5 for PM10
k = particle size constant = 0.23 for PM2.5
s = silt fraction = 8.50 (AP-42, Table 13.2.2-1, 12/03, construction)

W = water truck avg. veh. weight = 10.0 tons empty (estimated)
= 39.4 tons loaded (estimated with 8,000 gallon water capacity)
= 24.7 tons average

W = dump truck avg. veh. weight = 15.0 tons (for heavy duty Diesel trucks)
= 40.0 tons (for heavy duty Diesel trucks)
= 27.5 tons (for heavy duty Diesel trucks)
W = forklift avg. veh. weight = 8.0 tons empty (estimated)
W = auto/pickup avg. vehicle weight = 2.4 tons (CARB Area Source Manual, 9/97)
W = delivery truck avg. veh. wt. = 27.5 tons (for heavy duty Diesel trucks)
W = 3 ton truck avg. veh. Wt = 5.4 tons (estimate)
W = scraper avg. veh. wt. = 28.2 tons empty (615 scraper, Caterpillar Performance Handbook, 10/89)
48.6 tons loaded (615 scraper, Caterpillar Performance Handbook, 10/89)
38.4 tons mean weight
8.0 tons empty (estimated)
18.2 tons loaded (estimated with 3,000 gallons Diesel fuel capacity)
= 13.1 tons average

Gravel Road Travel - Source: AP-42, Section 13.2.2, 12/03.

$$E = (k)[(s/12)^{0.9}(W/3)^{0.45}]$$

k = particle size constant = 1.5 for PM10
k = particle size constant = 0.23 for PM2.5
s = silt fraction = 6.40 (AP-42, Table 13.2.2-1, 12/03, gravel road)

W = water truck avg. veh. weight = 10.0 tons empty (estimated)
= 39.4 tons loaded (estimated with 8,000 gallon water capacity)
= 24.7 tons average

W = dump truck avg. veh. weight = 15.0 tons (for heavy duty Diesel trucks)
= 40.0 tons (for heavy duty Diesel trucks)
= 27.5 tons (for heavy duty Diesel trucks)
W = forklift avg. veh. weight = 8.0 tons empty (estimated)
W = auto/pickup avg. vehicle weight = 2.4 tons (CARB Area Source Manual, 9/97)
W = delivery truck avg. veh. wt. = 27.5 tons (for heavy duty Diesel trucks)

Notes - Fugitive Dust Emission Calculations

E = water truck emission factor = 2.84 lb PM10/VMT
 E = dump truck emission factor = 2.98 lb PM10/VMT
 E = forklift emiss. factor = 1.71 lb PM10/VMT
 E = auto/pickup emiss. factor = 0.99 lb PM10/VMT
 E = delivery truck emiss. factor = 2.98 lb PM10/VMT
 E = 3-ton truck emiss. factor = 1.43 lb PM10/VMT
 E = scaper emiss. factor = 3.46 lb PM10/VMT
 E = fuel truck emiss. factor = 2.13 lb PM10/VMT

E = water truck emission factor = 0.44 lb PM2.5/VMT
 E = dump truck emission factor = 0.46 lb PM2.5/VMT
 E = forklift emiss. factor = 0.26 lb PM2.5/VMT
 E = auto/pickup emiss. factor = 0.15 lb PM2.5/VMT
 E = delivery truck emiss. factor = 0.46 lb PM2.5/VMT
 E = 3-ton truck emiss. factor = 0.22 lb PM2.5/VMT
 E = scaper emiss. factor = 0.53 lb PM2.5/VMT
 E = fuel truck emiss. factor = 0.33 lb PM2.5/VMT

E = auto/pickup emiss. factor = 0.77 lb PM10/VMT
 E = delivery truck emiss. factor = 2.31 lb PM10/VMT

E = auto/pickup emiss. factor = 0.12 lb PM2.5/VMT
 E = delivery truck emiss. factor = 0.35 lb PM2.5/VMT

Unpaved Road Travel and Active Excavation Area Control - Source: Control of Open Fugitive Dust Sources, U.S EPA, 9/88

$$C = 100 - (0.8)(p)(d)(t)/(i)$$

p = potential average hourly daytime

evaporation rate =

0.3575 mm/hr (EPA document, Figure 3-2, summer)

evaporation rate =

0.2695 mm/hr (EPA document, Figure 3-2, annual)

d = average hourly daytime traffic rate =

37.0 vehicles/hr (estimated)

t = time between watering applications =

1.00 hr/application (estimated)

i = application intensity =

1.4 L/m² (typical level in EPA document, page 3-23)

C = average summer watering control efficiency

92.2%

C = average annual watering control efficiency

94.1%

Finish Grading - Source: AP-42, Table 11.9-1, 7/98

$$E = (0.60)(0.051)(S^{2.0})$$

S = mean vehicle speed =

3.0 mph (estimate)

E = emission factor =

0.2754 PM10 lb/VMT

E = emission factor =

0.0193 PM2.5 lb/VMT

Notes - Fugitive Dust Emission Calculations

Bulldozer Operation and Scraper Excavation - Source: AP-42, Table 11.9.1, 7/98

$$E = (0.75)(s^{1.5})/(M^{1.4})$$

s = silt content =	8.5% (AP-42, Table 13.2.2-1, 9/98, construction haul route)
M = moisture content =	15.0% (SCAQMD CEQA Handbook, Table A9-9-G-1)
E = emission factor =	0.42 PM10 lb/hr
E = emission factor =	0.23 PM2.5 lb/hr

Scraper Travel

W = mean vehicle weight =	28.2 tons empty (615E scraper, Caterpillar Performance Handbook, 10/89)
=	48.6 tons loaded (615E scraper, Caterpillar Performance Handbook, 10/89)
=	38.4 tons mean weight

Daily Scraper Haul Tonnage = 1,428 ton/day (estimated)

Scraper Load = 20.4 ton (615E scraper, Caterpillar Performance Handbook, 10/89)

Daily Scraper Loads = 70.00 loads/day

Daily Scraper Hauling Distance = 0.08 miles/load (estimated)

Daily Scraper Travel = 10.61 miles/day

Notes - Fugitive Dust Emission Calculations

- (1) Wind erosion emission factor for active construction area is based on "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for South Coast AQMD by Midwest Research Institute, March 1996.
- (2) Material unloading emission factors are based on AP-42, p. 13.2.4-3, 1/95.
(Based on average annual wind speed recorded onsite and default soil moisture contents.)
- (3) Trenching emission factor is based on AP-42, Table 11.9-2 (dragline operations), 1/95.
(Based on default soil moisture content.)
- (4) Unpaved surface travel emission factors for water trucks, loaders, dump trucks, forklifts, delivery trucks, are based on AP-42, Section 13.2.2, 12/2003.
(Based on default soil silt content.)
- (5) Dust control efficiency for unpaved road travel and active excavation area is based on "Control of Open Fugitive Dust Sources", U.S. EPA, 9/88.
(Based on default evaporation rate shown in EPA document, Figure 3-2, 9/88, and typical water application rate shown in EPA document, page 3-23, 9/88.)

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Alternatives Analysis

Author: Susan Lee

SFERP Author: Julie Labonte, Barry Flynn, Steve Brock

BACKGROUND

The alternatives analysis must be based on a complete understanding of the electric transmission system and location of major infrastructure in and south of San Francisco because power plant site alternatives need to be located where adequate transmission is present (or can be constructed).

DATA REQUEST

12. Please provide a detailed map of existing utilities (including major water and natural gas pipelines) within and adjacent to the eastern side of the City of San Francisco and along the eastern sides of the cities between the San Francisco Airport and San Francisco.

Response: The maps and diagrams available to the SFPUC are as follows:

A. Electric Transmission:

- 1) Project Description, Potrero-Regional Setting (Potrero Unit 7 AFC, from CEC Web Site:
http://www.energy.ca.gov/sitingcases/potrero/documents/regional_map.html). (Please see Attachment ALT-12A1).
- 2) Peninsula Transmission System Schematic (Applicant's document). (Please see Attachment ALT-12A2).
- 3) Industrially-zoned land, 115 kV Substations, Natural Gas Supply Lines and Islais Creek Highlighted, (Applicant's document). (Please see Attachment ALT-12A3).

B. Gas Transmission:

- 1) See Electrical Transmission Industrially-zoned land, 115 kV Substations, Natural Gas Supply Lines and Islais Creek Highlighted, (Attachment ALT-12A1 and ALT-12A3).
- 2) California Energy Maps, Map of Major Natural Gas Pipelines in California (From CEC Website:
http://www.energy.ca.gov/maps/NATURAL_GAS_PIPELINES.PDF). (Please see Attachment ALT-12B2).

C. Water Transmission:

- 1) Water Supply Information and Diagram, (Applicant's Diagram). Project Water requirements are small and may be served by the water distribution system anywhere within the City. The diagram indicates the relative

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

locations of major water transmission lines serving the City. (Please see Attachment ALT-12C).

D. San Francisco Waste Water System:

- 1) Diagram Map of Water and Waste Water System Major Features, (Applicant's Diagram). The water supply coming from the existing wastewater system has been located based upon sufficient reliable quantity, and low salinity water coming from a major collection box receiving highlands water. Most wastewater within the low lands on the eastern side of the City contains high salinity due to saltwater intrusion. Project discharge requirements are small and may be served by the sewer system anywhere within the City. Attachment ALT-12D indicates the locations of major wastewater treatment plants, and collection boxes.

BACKGROUND

Evaluation of potential alternative sites for the PSA/FSA would be most efficient if based on a complete understanding of the sites considered by the CCSF in its siting planning process.

DATA REQUEST

13. Regarding alternative sites considered in the AFC:

- a. Please provide a description of the alternative sites that were considered in the planning and screening phase of AFC preparation, but were eliminated from consideration and not presented in the AFC. Describe the rationale for the elimination of each alternative. Please also include the locations and distances for access to electrical transmission, natural gas, and water supply.

Response: Three sites were considered and discarded during the planning and screening phase of the AFC. One of these sites was a multiple unit site. It was proposed for the San Francisco International Airport, near the United Cogeneration facility. For this facility, the electrical interconnection would have been at the East Grand substation, approximately 1.5 miles from the plant. The natural gas interconnection would have been approximately 1 mile from the site at South Airport Boulevard and San Bruno Avenue. Water and sewer connections would have been near the site. This site was eliminated from further consideration because of indications from the California Independent System Operator that it would not meet the City's goal of shutting down existing in-City generation, in particular, the Hunters Point Power Plant.

The remaining two sites were single-unit sites located at the NRG Thermal plant at Fifth and Jessie and at the Southeast Water Pollution Control Plant (WPCP). The NRG facility was a cogeneration facility that would produce steam for the City's steam loop. The electrical interconnection involved looping the 115 kV

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

DATA RESPONSES, SET 1A

Potrero-Larkin line, located one quarter of a mile from the proposed site, into a new plant substation. The natural gas interconnect was approximately 1.2 miles from the site at Seventeenth and Missouri. A recycled water supply for the facility was not clearly identified but was at least 1.5 miles from the site. This site was eliminated due to the high capital costs and financial risks, and potential air impact concerns.

The City also reviewed as a potential site the Southeast WPCP where the abandoned sludge drying facility is currently located. Electrical interconnection would require looping the new Potrero-Hunters Point 115 kV cable into the site. The site is located approximately 0.3 miles from the cable. Natural gas interconnection would be approximately 0.5 miles from the site near Highway 101. Water and sewer service would have been provided by the Southeast WPCP. This proposed site was not selected as the preferred site because the communities in the vicinity of Hunters Point Substation have borne and continue to bear the impacts from substantial industrial activity, most notably the Hunters Point Power Plant and the Southeast Water Pollution Control Plant. Thus City policy makers determined to avoid siting any new City-sponsored generation in the Hunters Point area.

- b. As described on page 9-4 in Section 9.4.1, the Proposed Project would tie into Potrero Substation, PG&E's natural gas main on 23rd and Illinois, and the City's combined sewer system with an onsite treatment system. Although distances are listed in Table 9-1, where specifically would each of the identified alternatives access water, transmission, and natural gas?

Response: All of the sites listed would have used the same recycled water facilities proposed for the Potrero site. On the smaller sites, such as the Cesar Chavez site and the Illinois Street site, additional land would have been required to site the recycled water facility.

For the Western Pacific site, the transmission interconnection would be directly to the Potrero substation. Gas interconnection would be with the natural gas transmission line at 25th and Illinois.

For the Pier 70 site, electrical interconnection would be to breaker bays located in the north end of the Potrero substation. Natural gas interconnection would be at the same interconnection point as the Potrero project, approximately 750 feet from the proposed site.

For the Cesar Chavez site, the transmission interconnection would be directly to the Potrero substation. Gas interconnection would be with the natural gas transmission line at Cesar Chavez and Illinois.

For the Illinois Street site, the transmission interconnection would be directly to the Potrero substation. Gas interconnection would be at the same interconnection point as the Potrero project, approximately 200 feet from the proposed site.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

14. What is the minimum parcel size necessary to site one, two, three, and four of the turbines?

Response: To determine a minimum parcel size for one, two, three and four turbines, it is necessary to consider a range of site specific conditions, such as roads, parcel shape, on-site recycled water treatment plant, ring-bus switchyard, location of the electrical interconnection, existing buildings including buildings to be retained to mitigate impacts on cultural resources, water storage, and compressors. Taking account of these conditions at the Potrero site and with the recycled water plant included within the project boundaries, the general minimum acreages set forth below were developed for the various numbers of turbines. These numbers could be different for different sites with different characteristics.

- One unit - 3.0 acres
- Two units - 3.5 acres
- Three units - 4.0 acres
- Four units - 4.5 acres

15. Please explain the CCSF's rationale for considering alternative sites only in the immediate area of the Potrero Power Plant for the siting of one or all of the turbines.

Response: One of the City's primary objectives in locating the combustion turbines was to facilitate the shutdown of existing in-City generation beginning with the Hunters Point Power Plant. See response to Data Request #16 for a summary of the City's ongoing discussions with the Cal-ISO regarding shutdown of existing in-City generation. These indicated that in order to achieve the City's objective to close down in-City generation, at least three of the combustion turbines would have to be electrically connected to the internal San Francisco 115 kV transmission network. SFPUC staff concluded that considering possible line outages as well as interconnection costs, the best interconnection points for a multiple unit site would be at one of the 115 kV substations. There are four 115 kV substations in the City: Larkin, Mission, Potrero and Hunters Point. Of these, there is no industrially zoned land or available land near the Larkin substation. Mission substation is in a densely populated area. Although there is industrially zoned land near the Mission substation, it is mainly in small, non-contiguous parcels, thus there was insufficient land to locate multiple combustion turbines in the vicinity. Natural gas supply is 1.2 miles away making the potential sites very expensive to build on. Hunters Point substation was eliminated from consideration due to environmental justice considerations. Specifically, communities in the vicinity of Hunters Point substation have borne and continue to bear the impacts from substantial industrial activity, most notably the Hunters Point Power Plant and the Southeast Water Pollution Control Plant. This left the area near Potrero substation as the one area of the City likely to have reasonably-sized parcels of industrially zoned land near natural gas and electrical interconnects that could meet the City's criteria of facilitating the shutdown of existing in-City generation.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

BACKGROUND

The AFC in Section 9.1 states that the Cal-ISO's load flow study will determine the amount of power needed to provide adequate electric reliability to the CCSF. The CCSF appears also to rely on the Cal-ISO for guidance on the beneficial locations of the new turbines.

DATA REQUEST

16. Page 9-3 in Section 9.4, Proposed and Alternative Sites, discusses a recent Cal-ISO analysis that indicates that all of Hunters Point Power Plant (HPPP) can be retired (which is one of the project objectives) if at least three of the four combustion turbines are located north of Martin Substation. Please provide a copy of the Cal-ISO analysis and conclusion.

- a. Does the Cal-ISO state that HPPP units could not be retired if the new turbines were located south of the Martin Substation?

Response: The City and the Cal-ISO have engaged in ongoing discussions regarding reliable service to the City and the requirements for closure of existing in City generation. In making decisions about alternatives to site the SFERP, the City relied on four communications from the Cal-ISO: 1) an April 18, 2003 letter (Attachment ALT-16A1); 2) an October 22, 2003 letter (Attachment ALT-16A2); 3) a matrix forwarded on February 9, 2004 (Attachment ALT-16A3); and 4) a statement by Cal-ISO planning staff at a March 4, 2004, hearing before the City Services Committee of the San Francisco Board of Supervisors. The attachments to the April 18, 2003, and October 22, 2003, letters indicate that, to provide for the shut down of units at Hunters Point Power Plant, the combustion turbines must be "electrically connected to the internal San Francisco 115kV transmission network."

- b. Does the Cal-ISO analysis assume the construction of PG&E's Jefferson-Martin 230 kV Transmission Project? If it does not, how many of the turbines would need to be north of Martin Substation to allow for closure of HPPP assuming that the Jefferson-Martin 230 kV line is operational?

Response: The Cal-ISO letters referenced in the response to Data Request #16A, (above) set forth the requirements for shut down of the Hunters Point Power Plant absent Jefferson-Martin. The April 18, 2003, letter sets forth the requirements to shut down Hunters Point Power Plant Unit 4, absent the Jefferson-Martin project, and indicates that 4 combustion turbines and six transmission projects, would be required. The October 22, 2003, letter sets forth the requirements to shut down Hunters Point Power Plant Units 1 and 4, absent the Jefferson-Martin project, and indicates that 4 combustion turbines and eight transmission projects would be required. The February 9, 2004, matrix indicates that Hunters Point Power Plant Units 4 and 1 could be shut down absent

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

Jefferson-Martin, with 3 combustion turbines and eight transmission projects. This information was confirmed by Cal-ISO planning staff at the March 4, 2004, hearing before the City Services Committee of the San Francisco Board of Supervisors. On May 28, 2004, San Francisco Mayor Gavin Newsom and Supervisor Sophie Maxwell wrote to Cal-ISO to request additional information about the ability to shut down in-City generation in various scenarios. The May 28, 2004, letter is provided as Attachment ALT-16B1. The City received a response to this letter on July 1, 2004, which is provided as Attachment ALT-16B2.

BACKGROUND

The CCSF intends to sell the power produced by the Electric Reliability Project to the California Department of Water Resources through a power purchase agreement. As a result, it is important to understand how the requirements of that agreement affect or restrict alternative sites.

DATA REQUEST

17. Section 3.02 of the Department of Water Resources (DWR) Power Purchase Agreement and Implementation Agreement says that the "City will use its best efforts to identify and control a site(s) at or near the City or at the San Francisco International Airport for the location of the Facility either through the optioning of a site or an equivalent governmental memorandum of understanding, acquisition of a site, or the leasing thereof, for a term sufficient to comply with the provisions of the Facility Agreements."

- a. Please explain how the DWR Power Purchase Agreement and Implementation Agreement affected the siting of alternatives? Why were no sites near the airport studied when the DWR agreement specifically presents the airport sites as viable options?

Response: The City's review of alternative sites was largely driven by its objective to shut down existing in-City generation as described in response to data request 15 above. The Power Purchase Agreement (PPA) also created an additional important consideration, the reasonableness of costs. Pursuant to section 4.02 (b) DWR may terminate the PPA prior to financing if it "determines, in its sole discretion, that the cost of [the] Facility is or will become unacceptable." As described in response to data request 13(b), the City preferred the Potrero site over a site at the Airport for three combustion turbines because the information made available by the Cal-ISO suggested that to replace existing in-City generation, the combustion turbines should be "electrically connected to the internal San Francisco 115kV transmission network."

- b. Please explain the relevance of the DWR Power Purchase Agreement to the alternatives siting process. Are there cost limitations in the DWR Agreement that might prohibit the use of certain sites?

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

DATA RESPONSES, SET 1A

Response: As stated above, section 4.02 (b) of the PPA provides that DWR may terminate the PPA prior to financing if it “determines, in its sole discretion, that the cost of [the] Facility is or will become unacceptable.” This provision highlights the importance of selecting a site(s) that will not unreasonably increase project costs.

BACKGROUND

The alternatives analysis must be based on a complete understanding of the electric transmission system and location of major infrastructure in and south of San Francisco because power plant site alternatives need to be located where adequate transmission is present (or can be constructed).

DATA REQUEST

18. The CPUC is currently conducting environmental review of the Potrero-Hunters Point 115 kV Project (an underground 115 kV line that would connect the Potrero and Hunters Point Switchyards). This project will be undergoing CEQA review during the next 6 months or so. Is the installation of the Potrero-Hunters Point 115 kV Project considered to be essential to the SFERP? Please describe how power would be distributed from the Potrero Switchyard, and whether any capacity limitations exist, with or without the proposed new line.

Response: To the City’s knowledge, installation of the Potrero-Hunters Point 115 kV cable is not required for the sole purpose of electrically interconnecting the SFERP to the Potrero substation. Nonetheless, the system impact studies for the SFERP assumed that the Potrero-Hunters Point 115 kV cable would be in place; thus, the City is not aware of whether and to what extent there would be system impacts caused by the SFERP that would have to be addressed if the Potrero-Hunters Point 115 kV cable were not in place. The City has recently taken the position before PG&E and the CPUC that the Potrero-Hunters Point 115 kV cable is needed to maintain system reliability even without any new generation at Potrero. Also, the Potrero-Hunters Point 115 kV cable is one of the transmission projects that Cal-ISO has listed in its April 18, 2004, and October 22, 2004, letters as necessary to allow the combustion turbines to replace units at the Hunters Point Power Plant in a scenario in which the Jefferson-Martin project is not in service.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-12A1

Potrero Regional Setting

PROJECT DESCRIPTION

Potrero - Regional Setting



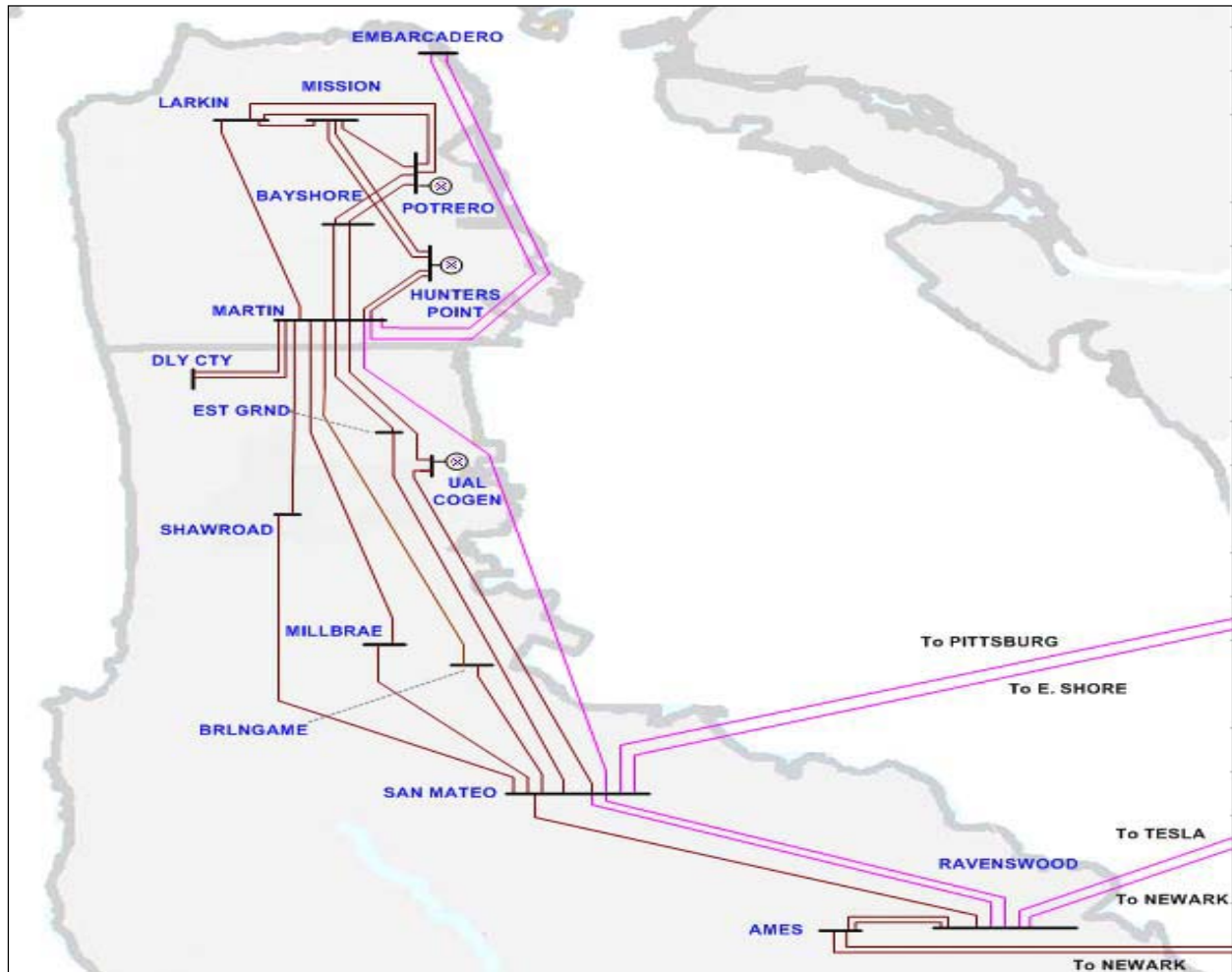
CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, DECEMBER 2000
 SOURCE: California Energy Commission Statewide Transmission Line & Power Plant maps/2000 & USGS 7.5 Minute Quadrangles

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-12A2

Peninsula Transmission System Schematic

Peninsula Transmission Schematic

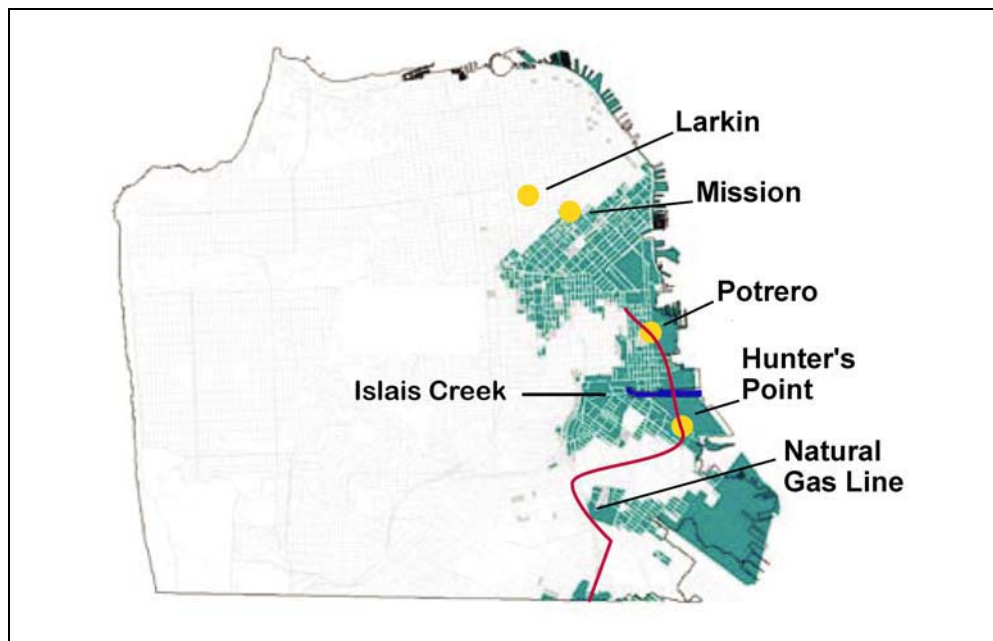


**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-12A3

Industrially Zoned Land

**Industrially Zoned land, 115 kV Substations,
Natural Gas Supply Lines And Islais Creek Highlighted**



**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-12B2

Map of Major Natural Gas Pipelines in California

CALIFORNIA PIPELINES STATEWIDE

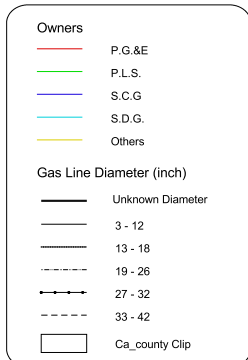


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DEPUTY DIRECTOR - ROBERT L. THERKELSEN
CARTOGRAPHERS: JACQUE GILBERT AND TERRY ROSE



50 0 50 100 Miles

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-12C

**Location of Major Water Transmission Lines
Serving San Francisco**

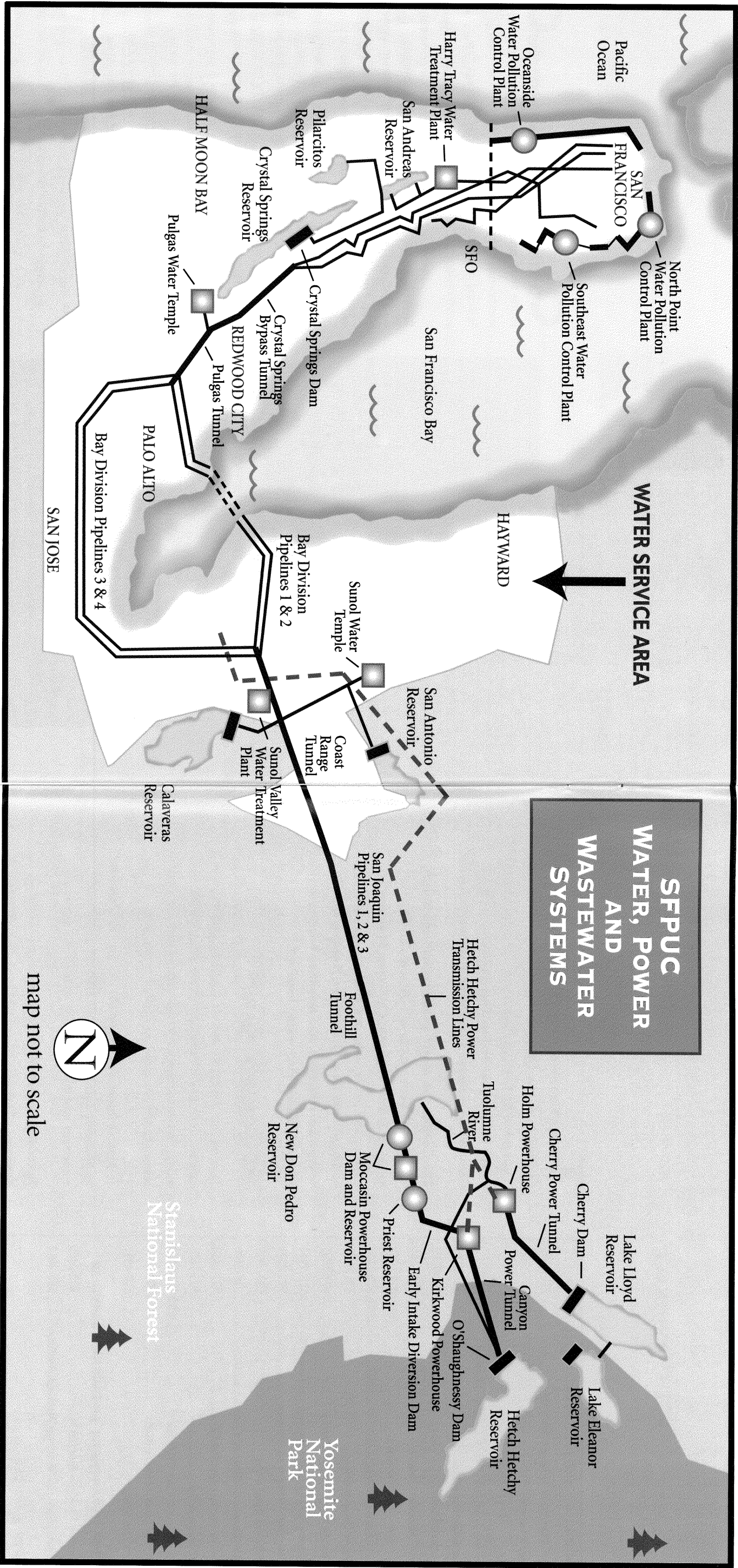
DUE TO SECURITY CONCERNS
THESE MAPS ARE
NOT AVAILABLE IN ELECTRONIC FORMAT.

HARD COPIES MAY BE SECURED FROM THE
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**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

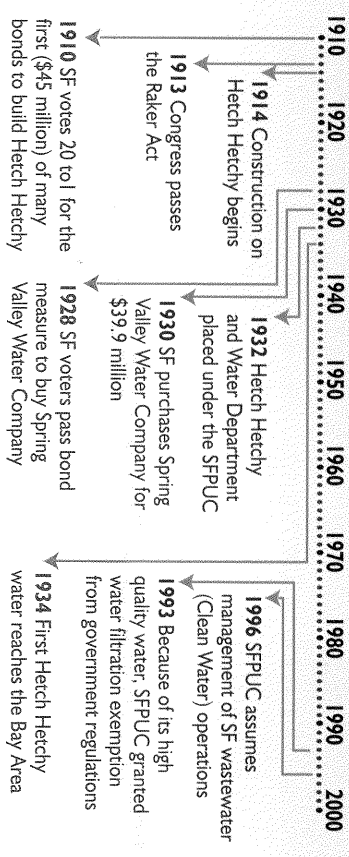
ATTACHMENT ALT-12D

Major Wastewater Treatment Plants and Collector Boxes



SFPUC At a Glance

Significant SFPUC Historical Dates



DRINKING WATER SERVICE

- The SFPUC provides drinking water to 2.4 million people in the Bay Area.
- The SFPUC sells water to 29 water agencies that provide water to 1.6 million people in San Mateo, and parts of Alameda and Santa Clara Counties.

SOURCE OF WATER

- 85% of San Francisco's water begins in the Sierra Nevada Mountains in Yosemite National Park, and is transported to the Bay Area through 150 miles of pipelines and tunnels.
- An additional 15% of water comes from local watersheds and reservoirs located in San Mateo, Santa Clara and Alameda Counties.

HYDROPOWER OPERATIONS

- The system provides hydroelectric power for the City and County of San Francisco services.
- Four hydroelectric plants, located in the Sierra Nevada Mountains, generate 1.6 billion kilowatt hours per year.
- More than half of San Francisco's streetlights are owned by the SFPUC.

WASTEWATER SERVICES

- The SFPUC collects and treats San Francisco stormwater and wastewater prior to release into the Bay and Ocean.
- The wastewater system is made up of collection sewers, transport and storage boxes, pump stations, overflow structures, treatment plants and outfalls.
- The SFPUC treats up to 90 million gallons per day in the dry season and 465 million gallons per day during the rainy season.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-16A1

**April 18, 2003 Letter Regarding ISO
Management Position on the Retirement of
Hunters Point Unit 4**



Terry M. Winter
President and Chief Executive Officer

April 18, 2003

Mr. Kevin Dasso
Director, Electric T&D Engineering
Pacific Gas and Electric Company
PO Box 770000; Mail Code H11J
San Francisco, CA 94177-0001

Ms. Theresa Mueller
Deputy City Attorney
City and County of San Francisco
City Attorney's Office
City Hall, Room 234
San Francisco, CA 94102

Subject: ISO Management Position on the Retirement of Hunters Point Unit 4

Dear Mr. Dasso and Ms. Mueller:

As you know, uncertainty surrounding the future continued operation of existing generation at Hunters Point Power Plant and Potrero Power Plant Unit 3 is a major consideration in assessing reliability issues in the San Francisco Peninsula Area. While these generating facilities provide a significant amount of load serving benefit to the San Francisco Peninsula Area, their continued operation beyond 2005 is questionable without addressing the upgrades that would be required at these plants to meet new air emission limitations that have been imposed on the Bay Area air quality region. ISO Management believes it is prudent to move forward with the installation of improved air pollution equipment for Potrero Power Plant Unit 3 to assure that there will continue to be base load generation available to serve existing and future Pacific Gas & Electric Company ("PG&E") customers beyond 2005. However, the future need for generation at Hunters Point, specifically Unit 4, continues to remain murky due to its age, the cost effectiveness of investing additional dollars towards upgrading this plant, and local community concerns related to the emissions from the plant.

In response to the uncertain availability of generation within the City of San Francisco ("City"), the ISO is aware of two generation projects that are currently being proposed for location within the San Francisco Peninsula Area. One project is by Mirant, who is proposing to construct Potrero Unit 7, a new 540 MW combined-cycle generating plant located within Mirant's existing Potrero Power Plant site. The ISO has provided testimony at the California Energy Commission Potrero 7 Application for Certification hearings in support of Unit 7 on the basis that it would be a suitable replacement for the aging Hunters Point Unit 4.

The second proposed generation project is by the City, who, as part of the settlement of a lawsuit brought against the Williams Companies by the State of California and the City, will receive four General Electric LM6000 gas turbines that could be sited at locations within the San Francisco Peninsula Area. The City has informed the ISO of its specific intent to locate these gas turbines in a manner that would enhance the electric reliability of San Francisco and enable the shutdown of Unit 4. Through technical analysis performed in cooperation with PG&E, the ISO has determined that the City's goal can best be served by siting the four Combustion Turbines ("CTs") where they can be directly connected to the existing 115kV transmission network within the City. The City has informed ISO Staff that their ability to site these new turbines within the City is justified if they directly support the retirement of Hunters Point Unit 4. As such, they have requested the ISO to provide them specific, additional conditions under which the ISO would not renew the Reliability Must-Run Contract for Hunters Point Unit 4 if the four CTs were sited within the City of San Francisco. The four CTs represent a total output of 180 MW, an amount slightly greater than the maximum output of Unit 4 (170 MW).

In March 2003, the ISO released a draft report entitled "San Francisco Peninsula Load Serving Capability" which documents a rather significant and comprehensive study mounted by the ISO to address questions being raised by stakeholders relating to San Francisco Peninsula Area load serving capability. The objective of the ISO's study was to provide stakeholders an independent, comprehensive determination of the maximum San Francisco Peninsula Area load serving capability under a multitude of future generation and transmission scenarios. The study provides a broad based understanding of the load serving needs of the San Francisco Peninsula Area and how existing and proposed transmission and generation facilities can reliably serve the load in this area. In particular, the study provides insight into the viability of the request by the City and PG&E to replace Hunters Point Unit 4 with four CTs.

While the ISO's comprehensive San Francisco Peninsula Area load serving capability study provides key load serving information about the San Francisco Peninsula Area, a companion ten-year load forecast for the area is needed to thoroughly assess the City's proposal. PG&E's most recent load forecasts for the San Francisco Peninsula Area have been recently distributed. The ISO has extensively reviewed this forecast and considers it to be representative of the expected "1 in 10 Year" electric demand for the San Francisco Peninsula Area through 2013.

Based on the results of the ISO's comprehensive study, the ISO has concluded that if Hunters Point Unit 4 is retired before 2005, there is inadequate load serving capability to serve the expected load in the San Francisco Peninsula Area unless additional generation and/or transmission reinforcement is constructed to support load growth in the area. In consideration of the request by the City and PG&E, the ISO has evaluated the viability of replacing Hunters Point Unit 4 with the four CTs proposed by the City. Again, based on the results of the ISO's comprehensive load serving study, the ISO has determined that the CTs, if located within the City, would be a suitable replacement for Hunters Point Unit 4, if and only if all the transmission system reinforcements, as indicated in the attached "ISO Terms and Conditions Allowing the Replacement/Shutdown of Hunters Point Unit 4", are completed and placed in-service prior to the retirement of Hunters

Point Unit 4. Once these conditions are met, the ISO will not renew the RMR Contract for Hunters Point Unit 4.

In closing, I want to reiterate ISO Staff comments which have been made to the City of San Francisco, PG&E, and other stakeholders; that the ISO shares the City's and PG&E's desire to retire all generation at Hunters Point in a manner that maintains a level of system reliability which the ISO is charged with providing. The ISO supports the City of San Francisco and PG&E's step-wise approach to addressing the retirement of generation at Hunters Point, and working towards retiring Hunters Point Unit 4 is a first step. ISO Management is expecting a continued, positive working relationship with the City of San Francisco and PG&E towards also addressing and facilitating the ultimate retirement of Hunters Point Unit 1.

If you have any questions, please contact Armando Perez at (916) 351-4400 or Gary DeShazo at (916) 608-5880.

Sincerely,



Terry M. Winter
President and Chief Executive Officer

Attachment

cc: CAISO Board of Governors
CAISO Board Assistants
CAISO Officers
Armando J. Perez, CAISO
Gary DeShazo, CAISO
Richard Cashdollar, CAISO
Jeanne Sole, CAISO
Ed Smeloff, City of San Francisco
Ralph Hollenbacher, City of San Francisco
David Freeman, California Power Authority
Dick Ferreira, California Power Authority
Kellan Fluckinger, California Power Authority
Manho Yeung, Pacific Gas and Electric Company

ISO Terms and Conditions
Allowing the Replacement/Shutdown of Hunters Point 4
Through the Installation of Four CTs

The following list of conditions describes the conditions under which the ISO would not renew the RMR Contract for Hunters Point 4 and allow its retirement. Full completion of these conditions would be required to allow the shutdown of Hunters Point 4; delays, partial completion, or omission of any item may prolong the need to retain Hunters Point 4 as an RMR unit unless agreed to by the ISO.

Baseline Assumptions

Hunters Point 4 retirement conditions are predicated on several critical baseline assumptions and present-day elements which are assumed in place at the time of retirement. These are as follows:

1. Potrero Unit 3 (206MW), and Units 4, 5, and 6 (52MW each) remain operational and fully available at their present day capacity.
2. Mirant will complete the installation of the Potrero 3 SCR, expected by second quarter 2005.
3. Hunters Point Combustion Turbine Unit 1 (52MW) will remain operational and fully available at its present day capacity.
4. Hunters Point Units 2 and 3 are fully operational as synchronous condensers, or a comparable replacement of reactive support is installed. A comparable replacement would be PG&E's presently proposed project to install a +240/-100 MVAR Static VAR Compensator at Potrero Switchyard. This project has already been approved by the ISO and is expected to be operational by September 2004.
5. Critical elements of the present-day Greater Bay Area transmission system are available at their present day capacity. For example, it is assumed that existing 115kV internal SF underground cables will not have experienced any permanent failures or abandonment. Alternatively, it is assumed that facilities such as the Tesla 500/230kV transformer #6 are still in service at its present capacity.

Future Requirements

The following future events and grid upgrades must be completed to allow the retirement and shutdown of Hunters Point Unit 4. It should be noted that any deviations from these required projects may require additional reinforcements to address these deviations.

1. **Installation of four 45 MW combustion turbines electrically connected to the internal San Francisco 115kV transmission network.** This installation (or an equivalent or greater generation project) must be fully installed and capable of providing no less than 495,000MWhrs per year¹. The ISO will require overlapping availability of Hunters Point 4 and the new generation project until the turbine project has completed a performance test agreed to be sufficient by the ISO. *Status: On April 10, 2003 CCSF initiated the generation interconnection study for this project and it's various alternatives. Expected completion date unknown, tentatively expected third quarter 2005?*
2. **Newark-Ravenswood 230kV Line Rerate.** PG&E to increase the emergency rating of the Newark-Ravenswood 230kV line using a higher wind speed assumption, and replace 230kV switches. The line's emergency rating will be increased from 2,110 Amps to 2,500 Amps. *Status: COMPLETE, and the CAISO Transmission Registry has been updated.*
3. **Ravenswood-San Mateo 115kV Line Rerate.** PG&E to increase the emergency rating of the Ravenswood-San Mateo 115kV line using a higher wind speed assumption. The line's emergency rating will be increased from 522 Amps to 618 Amps. *Status: COMPLETE, and PG&E has requested the ISO to update the Transmission Registry.*
4. **Tesla-Newark #2 230kV Line Rerate/Upgrade.** PG&E to increase the emergency rating of the Tesla-Newark #2 230kV line using a higher wind speed assumption, and replace 230kV switches. The line's emergency rating will be increased from 1,714 Amps to 1,954 Amps. *Status: UNDER CONSTRUCTION, completion expected May 2003.*
5. **Ravenswood 230/115kV Transformer.** PG&E to Install a new second 230/115kV transformer (420MVA) at Ravenswood. *Status: ENGINEERING & PROCUREMENT, completion expected May 2004.*
6. **San Mateo-Martin #4 Line 60-115kV Voltage Conversion.** PG&E to reconductor and convert the San Mateo-Martin 60kV circuit to 115kV operation. Substation modifications are also needed at Burlingame and Millbrae. *Status: Permit application filed with the CPUC in November 2002; PEA Application deemed complete on March 24, 2003. Expected completion of June 2004 or later depending on permit requirements.*

¹ Based on 2003 Contracted RMR MWhrs for HP4; HP4 2002 actual MWhrs = 448,371.

7. **Potrero-Hunters Point ("AP-1") 115kV Underground Cable.** PG&E to complete construction of a new 115kV underground cable between Potrero and Hunters Point. *Status: PG&E and CCSF are working on a joint project and completing the needed environmental impact report, June 2004 or later depending on permit requirements.*

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-16A2

**October 22, 2003 Letter Regarding Request for
Additional Information on Shutting Down
Generation at the Hunters Point and Potrero
Power Plants**



CALIFORNIA ISO

California Independent
System Operator

Terry M. Winter
President and Chief Executive Officer

October 22, 2003

Via Facsimile and US Mail

Office of Supervisor Sophie Maxwell
Board of Supervisors of the City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room 279
San Francisco, CA 94102

Subject: Request for Additional Information on Shutting Down Generation At the Hunters Point and Potrero Power Plants

Dear Supervisor Maxwell:

Thank you for your letter dated September 23, 2003, addressing the concerns of the City and County of San Francisco ("City") related to the future operation of generator units within the City. Over the past year ISO staff has spent a great deal of time and effort working with stakeholders representing the City, Pacific Gas and Electric Company ("PG&E"), and many members of the Potrero and Hunters Point/Bayshore communities. The ISO recognizes that there are wide-ranging interests regarding the future of generation at Hunters Point Power Plant ("Hunters Point") and Potrero Power Plant ("Potrero") and that the concerns and issues voiced by all stakeholders are an important part of deciding how best to serve the demand for energy in San Francisco. The ISO staff has participated in numerous community and City forums where our goal has been twofold; 1) Raise stakeholder's technical understanding of how the electrical system within the San Francisco Peninsula Area¹ works to serve the load in this area and 2) Pursue the ISO's mandated mission to assure a reliable transmission system is in place to serve the load.

San Francisco Peninsula Load Serving Capability Study

In July 2003, the ISO finalized its report entitled "San Francisco Peninsula Load Serving Capability" which documents a rather significant and comprehensive study mounted by the ISO to address questions being raised by stakeholders relating to San Francisco Peninsula Area load serving capability. While the stated objective of the ISO's study was to provide stakeholders an independent, comprehensive determination of the maximum San Francisco Peninsula Area load-serving capability under a multitude of future generation and transmission scenarios, its true value has been to provide stakeholders meaningful information to allow them to make informed decisions. This study, which had broad stakeholder input, is the first of its kind to be performed for this area and has, much to its credit, redefined the technical approach to assessing its reliability needs. PG&E and the City support the study's methodology and it will be the benchmark that

¹ In the testimony for the Jefferson-Martin Transmission Line, currently before the California Public Utilities Commission, the ISO refers to the City and County of San Francisco and the San Francisco Peninsula as the "San Francisco Peninsula Area." For clarity in this letter, the ISO will delineate separately, when necessary, the City, the Peninsula, and the Greater Bay Area even though the City is included in the Peninsula, which is included in the Greater Bay Area.

defines how all transmission assessment initiatives in this area will likely be performed from this point forward. The ISO has relied on this study's results and conclusions in addressing your questions and those of other stakeholders.

Retirement of Hunters Point Unit 1 and Unit 4

The ISO acknowledges the importance to the City and its citizens of retiring all generation at Hunters Point as well the City's desire to implement its Electricity Resource Plan. As such, the ISO remains committed to the goal of closing Hunters Point and will continue to work with the City and other stakeholders.

The City and PG&E have reached a conclusion that if all of the conditions outlined in the April 18, 2003 letter are met then Hunters Point Unit 1 can also be retired with Hunters Point Unit 4. The ISO does not agree with this conclusion. The ISO has consistently stated that generation within the City is needed to mitigate local area reliability constraints within the City, the Peninsula, and the Greater Bay Area. Put another way, the need for generation in the City is based not only on load-serving constraints within the City, but also throughout the Peninsula as well as the Greater Bay Area. Constraints outside of the City currently exist; and the ISO's "San Francisco Peninsula Load Serving Capability" study extensively documents them. It is the ISO's position that all constraints must be addressed to determine the need for generation within the City. Consistent with this position, the April 18, 2003, letter appropriately considers the entire Greater Bay Area when it delineates the conditions under which the ISO would not extend the RMR Contract for Hunters Point Unit 4. Without some suitable generation replacement or additional transmission infrastructure beyond what has been identified in the ISO's April 18, 2003 letter, Hunters Point Unit 1 is still needed to meet the local area reliability needs for the City, the Peninsula, and the Greater Bay Area.

The ISO has continued to assess the load serving capability of the City and the Peninsula and has come to the conclusion that in order to meet all grid planning and operational needs in this area approximately 400 MW² of generation must be located north of San Mateo. The four proposed combustion turbines being sited at or near Potrero is a necessary component to meeting this generation requirement to assure the future reliability of the City, the Peninsula, and the Greater Bay Area systems. This assessment is what led the ISO to conclude that the siting of four combustion turbines, totaling approximately 180 MW at or near Potrero, while a step in the right direction, is not enough to allow the retirement of all generation at Hunters Point. It is imperative that other transmission additions accompany the siting of the City's combustion turbine project in order to close all generation at Hunters Point.

To this end, the ISO and PG&E have proactively worked together over the past six months to define the necessary transmission additions that support our mutual goal of retiring generation at Hunters Point while maintaining the required level of reliability mandated by the ISO's Planning Standards. The culmination of our joint efforts is reflected in PG&E's near final 2003 ten-year transmission expansion plan, as presented to the stakeholders on October 14, 2003. The 2003 transmission expansion plan includes all transmission reinforcements delineated in the ISO's April 18, 2003 letter as well as other key projects that are necessary to retire all generation at Hunters Point provided the City's combustion turbine project is successfully sited at or near Potrero (see attachment 1). The ISO believes that while maintaining their commitment to retire

² The determination of 400MW was based on the following: 1) expected 2006 system configuration that assumes the Jefferson-Martin Project in-service; 2) a peak weekend San Francisco Forecast of 750MW; 3) and typical San Mateo wash clearance conditions. Changes in system configuration and/or load forecast projections may change the generation need.

Hunters Point, PG&E should remain focused on completing the necessary transmission upgrades/additions they have included in their 2003 transmission expansion plan. The ISO encourages the City and all community members to fully support these projects to assure that they will be completed in a timely manner.

Your September 23, 2003 letter posed several questions that directly relate to the conclusion that the ISO has reached with regard to generation at Hunters Point. Hopefully, our answers to your questions will provide you a better understanding of our position. For your convenience, we have inserted your questions in italics followed by the ISO's answer.

Q1) *Since your April letter outlining the conditions under which Hunters Point (HP) 4 could be released from its RMR contract, PG&E has completed its "San Francisco Internal Transmission System After AP-1 Technical Study." This study shows that under assumed new emergency ratings for the existing cables in the City, the need for local generation to serve internal City needs is substantially decreased. PG&E has also indicated its intention to reinforce the Tesla-Newark 230kv lines by the summer of 2005. Please indicate whether these changing circumstances will also allow the shutdown of HP1 and/or Potrero 3 with the installation of four turbines the City is attempting to install. Would the above answer change if only three turbines are installed? In your answer, please indicate whether the local remaining needs for local generation are dictated by local and Bay Area grid planning, RMR and/or operational needs. Please answer the above both with and without the addition of the Jefferson-Martin transmission project.*

A1) The City's Internal 115 kV Cable System:

To understand the ISO's position on the reliability needs for this area, it is important to understand the context in which PG&E's "San Francisco Internal Transmission System After AP-1 Technical Study" was performed.

The ISO's "San Francisco Peninsula Load Serving Capability" report identified, among other things, the need to address cable constraints internal to the 115kV system within the City. While the ISO's load-serving study assumed that a "cable fix" would be implemented by PG&E, the study did not recommend a specific transmission solution to resolve these constraints. Instead, the ISO recommended that PG&E undertake its own study of the City's 115kV cable system to identify an appropriate cable project to submit to the ISO for approval. PG&E performed the "San Francisco Internal Transmission System After AP-1 Technical Study" but PG&E limited the study's scope to the City's 115kV cable system. As a result, PG&E's study results, conclusions, and recommendations are reflective of that limited scope. While in concurrence with most of PG&E's study recommendations, the ISO has repeatedly stated that the ISO's own load-serving study clearly illustrates that transmission constraints exist not only within the City, but throughout the entire San Francisco Peninsula Area. In fact, the ISO load-serving study concludes that the load-serving capability of the San Francisco Peninsula Area is directly related to the capability of the transmission system in the San Mateo-Martin Corridor, the 230kV system south of San Mateo, and local transmission along the San Francisco Peninsula. The study also concludes that an accurate load-serving capability can be determined only if all San Francisco Peninsula Area constraints are appropriately addressed. Because PG&E limited the scope of their study to the system within the City, it is inappropriate to apply these results to the larger San Francisco Peninsula Area because they overstate the ability to serve load within the City.

Without Jefferson-Martin Transmission Line:

Given the above, the ISO has concluded that all generation at Hunters Point can be retired if the following is successfully completed:

- 1) All transmission and generation requirements identified in the ISO's April 18, 2003 letter;
- 2) The Tesla – Newark # 2 - 230kV line bundling is completed; and
- 3) The Ravenswood – Ames 115kV lines #1 & #2 are reconductored.

While the projects mentioned above support the local and Greater Bay Area grid planning standards, RMR requirements, and operational needs of the area, the Tesla-Newark project is key to reducing the RMR requirement within the Greater Bay Area. The Jefferson-Martin Project is a suitable replacement for the Tesla-Newark and Ravenswood-Ames projects from a local and Greater Bay Area grid planning and operational standards perspective, because they increase the transmission capacity through the San Francisco Peninsula. However, these projects have little impact on the RMR need for the Greater Bay Area. Therefore, while all of the projects mentioned above are needed to import the power required to meet area load serving needs, it is the Tesla-Newark project that is needed to effectively reduce the Greater Bay Area RMR requirement that is, in part, being met by the generation located within the City.

Installation of Only Three Combustion Turbines:

Given the current PG&E load forecast for the San Francisco Peninsula area, the installation of only three turbines at or near Potrero is not enough to meet the ISO Grid Planning Standards nor to meet the Operational need in the City and Peninsula. A net reduction in generation within the City must be countered by an increased flow of power over the transmission systems leading into and through the Peninsula and the City in order to serve the load in these areas. This added power flow places additional stress on these transmission systems and therefore has the overall impact of advancing the need for additional transmission infrastructure within these areas.

Potrero Unit 3:

Based on the generation needs that the ISO has identified, Potrero Unit 3 is required to be in-service. The ISO has not studied retirement of Potrero Unit 3, but it is expected that another 230kV import line similar to the Jefferson – Martin Project would be needed. As such, it is imperative that stakeholders next focus on the future transmission requirements of the Greater Bay Area to assure adequate planning for a robust system that optimizes the generation and transmission service to the City, the Peninsula, and the Greater Bay Area. This work will be carried forward in 2004 through the ISO's San Francisco Stakeholder Study Group. The City and all stakeholders are encouraged to participate in this study group.

- Q2) *PG&E states in its August 5, 2003 letter to "Fellow San Franciscans," that any delays in PG&E projects which require approval by the CPUC "will make it unlikely that the CAISO will allow us to close the Hunters Point Power Plant by the end of 2005." We would like the ISO to allow the shutdown of HP immediately. If this is not possible, we certainly want to avoid the circumstance of*

PG&E retrofitting HP 4 just before the system additions that allow it to be closed are made. We are concerned that purposely removing HP 4 from service to install retrofits would jeopardize reliability to the City. And doing so just before other improvements are made to the electric system that would remove the need for HP 4 would not be cost effective. Please confirm that the ISO will consider a plan for PG&E to operate the Plant, as needed, through obtaining and utilizing interchangeable emission reduction credits (IERC), until the other improvements are in place.

- A2) PG&E is correct that any delays in PG&E's proposed projects will impact the continued need to extend the RMR Agreement for Hunters Point Units 1 and 4. The ISO has consistently maintained that the generation at Hunters Point and Potrero play a key role in the overall reliability of this area and believes that the timely completion of PG&E's projects as well as the City's combustion turbine project are necessary components to achieve the retirement of generation at Hunters Point by the end of 2005.

Securing additional IERCs to operate Hunters Point Unit 4 beyond 2005 is the responsibility of PG&E as the plant owner and the Bay Area Air Quality Management District. The ISO would be supportive of any reasonable plan that would allow sufficient time for other transmission and/or generation alternatives to develop and avert a retrofit of Hunters Point Unit 4, provided the City, the communities, and the Bay Area Air Quality Management District are able to settle on a compliance plan. However, there is uncertainty in successfully achieving such a plan. Time is running very short on concrete solutions to this issue and at this point, in order to meet its reliability mandates, the ISO must approve a retrofit of Hunters Point Unit 4.

The ISO urges the City, PG&E, and community members to move expeditiously towards consensus on solutions such as supporting the City's combustion turbine project, the Jefferson – Martin Project, as well as all applicable transmission projects currently included in PG&E's draft 2003 transmission expansion plan.

- Q3) *Similarly, assuming Mirant were able to operate Potrero 3 using IERCs, would the ISO be willing to defer the retrofit of Potrero 3 until a time when the plant could be removed from service for a retrofit at less risk to the reliable electric service in San Francisco? And, to the extent this is not answered above, under what conditions would the ISO agree not to retrofit Potrero 3 and allow it to be retired completely?*

- A3) The answer to this question is similar the ISO's response to question 2. Again, securing additional IERCs to operate Potrero Unit 3 beyond 2004 is the responsibility of Mirant as the plant owner and the Bay Area Air Quality Management District. While the ISO would be supportive of any reasonable plan that would allow additional time to adjust the Potrero Unit 3 retrofit, it is highly unlikely that such alternatives can be secured in time to alter the current Potrero Unit 3 retrofit schedule. PG&E has informed the ISO that it intends to operate Hunters Point Unit 4 through 2005 to allow for the completion of the Potrero Unit 3 retrofit and the Jefferson – Martin 230kV Transmission Project. However, both of these projects face significant barriers to their successful completion such that their availability by the end of 2005 remains uncertain at best. To defer the Potrero Unit 3 retrofit to a later date is not in the best interests of PG&E's customers. Therefore, the ISO will proceed with the requirement to retrofit Potrero Unit 3.

The ISO urges the City, PG&E, and community members to move expeditiously towards consensus on solutions such as supporting the City's combustion turbine project, the Jefferson – Martin Project, as well as all applicable transmission projects currently included in PG&E's draft 2003 transmission expansion plan.

- Q4) *PG&E has proposed to adopt emergency ratings for the old underground cables in San Francisco. This is consistent with the City's desire to reduce in-City generation. However, we want to ensure that it is also consistent with providing reliable service. Does the ISO believe that this re-rating is appropriate? If this re-rating is adopted, will the ISO require any additional measures to ensure reliability?*
- A4) At this point in time, the ISO does not support the conclusion that PG&E has reached regarding the capability of the cables. These cables are very old and the ISO is concerned that they may be placed in higher stress situations than the engineering and operating assumptions used to calculate the ratings, exposing them to an increased risk of failure. The ISO is currently working with PG&E to resolve the issues surrounding the emergency ratings of the cables in the City. While PG&E retains the right to rate their facilities, the ISO has an obligation to assure itself and all stakeholders that new or changed ratings proposed by PG&E are based on good utility practice and that reasonable engineering and operating assumptions are used. The ISO is currently working with PG&E to clarify the foundational assumptions on which the proposed re-rates are based.

The ISO hopes that the information that has been provided has been informative and will help you in addressing your concerns. If you have any questions, please call Julie Gill at (916) 351-2221 or Gary DeShazo at (916) 608-5880.

Sincerely,

ORIGINAL SIGNED BY

Terry M. Winter
President & Chief Executive Officer

Cc: Gary DeShazo, ISO
Julie Gill, ISO
Kevin Dasso, PG&E
Edward Smeloff, SFPUC
Jared Blumenfeld, SFDoe
Theresa Mueller, Deputy City Attorney
Barry Flynn, Flynn & Associates

Attachment 1

Reference List of Projects

1. **Installation of four 45 MW combustion turbines electrically connected to the internal San Francisco 115kV transmission network.** This installation (or an equivalent or greater generation project) must be fully installed and capable of providing no less than 495,000MWhrs per year³. The ISO will require overlapping availability of Hunters Point 4 and the new generation project until the turbine project has completed a performance test agreed to be sufficient by the ISO. *Status: On April 10, 2003 CCSF initiated the generation interconnection study for this project and it's various alternatives. Expected completion date unknown, tentatively expected by end of 2005.*
2. **Jefferson-Martin 230 kV Line Project.** PG&E to increase the import capability into the San Francisco Area through building a new 230 kV line between Jefferson and Martin Substations. This line may be partly or all an underground cable. *Status: This project has been approved by the CA ISO and is presently within the CPUC CPCN process. The line is scheduled to be in Operation by Sept. 2005*
3. **Newark-Ravenswood 230kV Line Rerate.** PG&E to increase the emergency rating of the Newark-Ravenswood 230kV line using a higher wind speed assumption, and replace 230kV switches. The line's emergency rating will be increased from 2,110 Amps to 2,500 Amps. *Status: Completed*
4. **Ravenswood-San Mateo 115kV Line Rerate.** PG&E to increase the emergency rating of the Ravenswood-San Mateo 115kV line using a higher wind speed assumption. The line's emergency rating will be increased from 522 Amps to 618 Amps. *Status: Completed.*
5. **Tesla-Newark #2 230kV Line Rerate.** PG&E to increase the emergency rating of the Tesla-Newark #2 230kV line using a higher wind speed assumption, and replace 230kV switches. The line's emergency rating will be increased from 1,714 Amps to 1,954 Amps. *Status: Completed.*
6. **Tesla-Newark #2 230kV Line Upgrade.** PG&E to increase the rating by completing the bundling of the Tesla-Newark #2 230kV line with 954 ACSS conductor for approximately 8 miles out from Tesla Substation. *Status: Proposed within PG&E's 2003 Transmission Expansion Plan for May 2005 operation.*
7. **Ravenswood 230/115kV Transformer.** PG&E to install a new second 230/115kV transformer (420MVA) at Ravenswood. *Status: ENGINEERING & PROCUREMENT, completion expected May 2004.*
8. **Ravenswood-Ames #1 & #2 115 kV lines Reinforcement.** PG&E to increase the rating of the Ravenswood-Ames #1 & #2 115 kV lines by reconductoring them with 477 ACSS

³ Based on 2003 Contracted RMR MWhrs for HP4; HP4 2002 actual MWhrs = 448,371.

conductor. **Status:** *Proposed within PG&E's 2003 Transmission Expansion Plan for May 2005 operation.*

9. **San Mateo-Martin #4 Line 60-115kV Voltage Conversion.** PG&E to reconductor and convert the San Mateo-Martin 60kV circuit to 115kV operation. Substation modifications are also needed at Burlingame and Millbrae. **Status:** *Permit application approved by the CPUC in October 2003; Expected completion of June 2004.*

10. **Potrero-Hunters Point ("AP-1") 115kV Underground Cable.** PG&E to complete construction of a new 115kV underground cable between Potrero and Hunters Point. **Status:** *PG&E and CCSF are working on a joint project and completing the needed environmental impact report, operation is scheduled for June 2004 or later depending on permit requirements.*

Friday 2:30 PM

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-16A3

ISO Grid Planning Matrix

ISO GRID PLANNING DRAFT

February 09, 2004

The objective of San Francisco is to shut down Hunter Point Power Plant. The objective of ISO is to ensure RMR, Operational and Reliability criteria are met.

There are several combinations of transmission and generation projects that appear capable of meeting both set objectives through 2006 (note the conditions). The combinations narrow when considering the conditions and compliance through 2010.

Transmission and Generation Combinations	Release Hunters Point 4 From Its RMR Contract	Release Hunters Point 4 & 1 From RMR Contracts	ISO San Francisco Operational and Reliability Criteria	
			Thru 2006	Thru 2010
Trans + OTP	No	No	No	No
Trans + 4 CTs	Yes	No	Yes	No
Trans + J-M	Yes *	No	Yes *	No
Trans + OTP + 3 CTs	Yes	Yes	Yes	No
Trans + OTP + (3+1) CTs	Yes	Yes	Yes	No
Trans + OTP + 4 CTs	Yes	Yes	Yes	No
1 or 2 CTs + Trans + J-M	Yes *	Yes **	Yes *	No
3 or 4 CTs + Trans + J-M	Yes	Yes	Yes	Yes

Trans – the six PG&E transmission system upgrades noted in April 18, 2003 letter

CTs – the City owned peaking power plants (have not begun permitting)

(3+1 CTs) – 3 CTs cited in the city and fourth at SF Airport

J-M – The Jefferson-Martin transmission project plus two associated transmission projects in Maxwell letter (J-M is in permitting)

OTP – Tesla – Newark #2 230kV Line Upgrade and Ravenswood – Ames #1 & #2 115kV Line Reinforcement

* Conditioned on using higher emergency ratings transmission internal to the City per a PG&E proposal. ISO and PG&E are currently addressing the viability of using these ratings. Resolution is expected in Q1, 2004.

** Conditioned on new Martin-Hunters Point transmission project going into service in 2007 per PG&E 2003 Expansion Plan. ISO will consider this condition as having been met when the Martin-Hunters Point transmission project is approved by the ISO Board, permitted and in operation. This line is currently scheduled for Q4 2007.

Further Considerations:

- PG&E and the City have an agreement that Hunters Point plants will be shut down when released from RMR contracts.
- The City may not understand that what is needed to release Hunters Point 4 from its RMR contract may not be sufficient to shut down both Hunters Point 1 & 4
- The City is contractually obligated to CERS to have purchased land by May 1, 2004. The dates have been extended once. ISO will not include the peakers in its assumptions until they are permitted and under construction.
- The six PG&E transmission projects identified in Terry Winter's April 18, 2003 letter are or near complete
- The Jefferson-Martin transmission project is being permitted. ISO includes this project in its assumptions for planning studies.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-16B1

**May 28, 2004 Letter Regarding Requirements
for Shutting Down Old Electric Generating Units
in San Francisco**



May 28, 2004

Terry M. Winter
President and Chief Executive Officer
California Independent System Operation
151 Blue Ravine Road
Folsom, CA 95630

Subject: Requirements for shutting down old electric generating units in San Francisco

Dear Mr. Winter:

The City appreciates the substantial work done by the ISO to clarify the conditions necessary to allow for closure of the old electric generating equipment that currently exists at Hunter's Point and Potrero power plants. As you know, these plants, which are located in close proximity to residential areas, are among the oldest and dirtiest in California. We are personally committed to ensuring the closure of these old plants at the earliest possible time. To achieve this goal, we are supporting the Jefferson-Martin and other transmission projects, developing our own combustion turbine project and renewable energy projects, and aggressively pursuing energy efficiency. We continue to need your assistance as we plan for cleaner, more reliable and more efficient electric resources. In particular, we request your response on several items.

1. Closure of Hunters Point Units 1 and 4

a. The City seeks a commitment by the ISO to release Hunters Point Units 1 and 4 from any RMR obligations no later than December 2005.

The closure of the Hunters Point power plant is a longstanding goal of the community and the City. Both the ISO and PG&E have stated their commitment to help achieve this goal. We discuss below the steps being taken to improve reliability in San Francisco to expedite the closure of Hunters Point. The City believes it is time to set a date certain for the closure of Hunters Point. The ISO's position may be that Hunters Point is needed to ensure reliability. However, the record demonstrates that Hunters Point is not, in fact, reliable. The City's testimony in the Jefferson-Martin case shows that the generators in San Francisco, particularly Hunters Point Unit 4, are significantly less reliable than the average generator on the ISO grid. The ISO's continued reliance on Hunters Point to provide reliability is not reasonable or prudent.

For this reason, as well as the strong environmental justice implications of the continued operation of this plant, the City requests its closure no later than December 2005. The City believes that closure by this date, if not sooner, is feasible and prudent in view of the system improvements already completed and those currently underway.

Moreover, in the 18 months remaining before December 2005, additional or expedited transmission improvements could be completed. The ISO's commitment to close Hunters Point by December 2005 would greatly enhance our joint ability to plan for cleaner, more reliable energy resources.

b. The City seeks confirmation from the ISO that it will release Hunters Point Units 1 and 4 from any RMR obligations on completion of the transmission projects identified in the attachment to PG&E's May 4, 2004 letter.

According to PG&E's May 4, 2004 letter, the Jefferson-Martin project is expected to be completed by December 2005. The letter indicates that other transmission projects identified as necessary to ensure reliability will be completed by that date if not sooner. PG&E states that these projects will provide sufficient reliability to permit the closure of Hunters Point Units 1 and 4, even without additional generation. Please confirm that the ISO will release Hunters Point Units 1 and 4 from any RMR obligations on completion of Jefferson-Martin and the transmission projects identified in the attachment to PG&E's letter, if not sooner.

c. The City seeks confirmation from the ISO that it will release Hunters Point Units 1 and 4 from any RMR obligations provided that three turbines are connected to the internal San Francisco 115 kV transmission network and the eight transmission projects identified in your October 22, 2003 letter (which exclude Jefferson-Martin) are completed.

We want to ensure the closure of all generation at Hunters Point even if the Jefferson-Martin project is delayed or not approved. In your October 22, 2003 letter to Supervisor Maxwell you determined that all generation at Hunters Point (Units 1 and 4) could be shutdown if the City sited four combustion turbines on the 115kV system and PG&E completed eight specified transmission projects. (See page 4.) You stated that this could be achieved even without the Jefferson-Martin transmission project. Since that time, in view of environmental justice and other considerations, we have determined that only three turbines can be sited within the City. It is likely that the fourth turbine will be sited at the San Francisco International Airport.

Based on the information provided in studies performed by the ISO and PG&E, we believe that the siting of three turbines in the City will allow for the shutdown of Hunters Point Units 1 and 4, even without Jefferson-Martin, as long as the eight previously identified transmission projects are completed. We have continued to work with your staff to reach consensus on this matter. In February 2004 the ISO provided us with a matrix that indicated agreement on this issue. On March 4, the ISO provided testimony supporting this view in a hearing before the City Services Committee of the San Francisco Board of Supervisors. Based on these representations, the City filed an Application for Certification for three turbines at the existing Potrero site with the California Energy Commission on March 17, 2004. Please confirm that the ISO will release Units 1 and 4 from their RMR contracts provided that three turbines are connected to the internal San Francisco 115 kV transmission network and the eight transmission projects identified in your October 22, 2003 letter (which exclude Jefferson-Martin) are completed.

2. Closure of Potrero Units 3, 4, 5 and 6

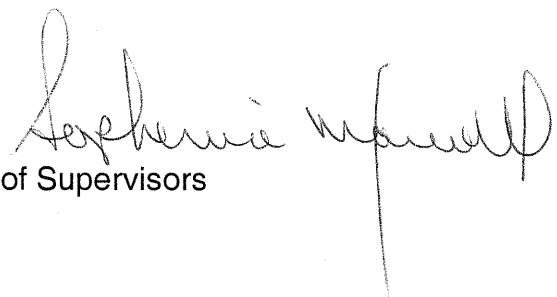
The City would like to ensure the closure of all existing generation at Potrero as soon as possible. PG&E's May 4, 2004 letter suggests that this should be possible in the near future. PG&E's May 4, 2004 letter indicates that with Jefferson-Martin and the other transmission projects set forth in the attachment to the letter, only 200 MW of generation would be needed north of San Mateo substation. If this is correct, the ISO should be able to release all existing Potrero units from any RMR obligations once 1) Jefferson-Martin and the other transmission projects identified by PG&E are completed, 2) Hunters Point is closed, and 3) three new turbines at Potrero and a fourth turbine at the Airport are placed in service, . Please confirm that this is correct. If this is not correct, please 1) explain why not, 2) detail which units at Potrero Power Plant could be released of any RMR obligations in this scenario, and 3) describe what additional resources or load reduction would be required to provide for the release of all of the Potrero Power Plant units from any RMR obligations.

The City understands that the ISO has many responsibilities and does not determine questions of this nature without substantial study. Nonetheless, we are aware that substantial study has already been undertaken that will assist in answering these questions. We would appreciate a prompt response to those questions that the ISO is willing to answer based on existing studies. At a minimum, it is our expectation that our questions relating to Hunters Point Units 1 and 4 are in this category and that the ISO could also promptly indicate the units at Potrero that it would be willing to release from any RMR obligation in the scenario outlined in our point 2 above. Additional responses could be provided as the necessary information becomes available. Thank you for your attention to these issues. We look forward to continuing our work together.

Sincerely,



Gavin Newsom
Mayor



Sophie Maxwell
Member, Board of Supervisors

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT ALT-16B2

**July 1, 2004 Letter Regarding Shutting Down
Generation at the Hunters Point and Potrero
Power Plants**

From: CALIFORNIA ISO

916 351 2350

07/01/2004 11:33 #061 P.002/013



CALIFORNIA ISO

California Independent
System Operator

Jim Detmers
Vice President, Grid Operations

July 1, 2004

Via Facsimile and US Mail

The Honorable Gavin Newsom, Mayor of the City and County of San Francisco
Ms. Sophie Maxwell, City and County of San Francisco Board of Supervisors
Mr. Jeffrey D. Butler, Pacific Gas and Electric Senior Vice President, Transmission and Distribution
Mr. Ralph Hollenbacher, San Francisco Public Utilities Commission

Subject: Shutting Down Generation At the Hunters Point and Potrero Power Plants

Dear Mayor Newsom, Ms. Maxwell, Mr. Butler, and Mr. Hollenbacher:

The California Independent System Operator Corporation ("ISO") has received letters from each of you concerning the shut down of generation at Hunters Point Power Plant ("Hunters Point") and Potrero Power Plant ("Potrero"). Because the questions being asked are similar, the ISO has taken the liberty of addressing all of the questions in this letter.

Over the past several years, ISO staff has spent a great deal of time and effort working with the City and County of San Francisco ("City"), Pacific Gas and Electric Company ("PG&E"), and many members of the Potrero and Hunters Point/Bayshore communities ("Parties") to address concerns and questions related to the need for generation at Hunters Point and Potrero. The ISO recognizes that there are wide-ranging interests regarding the future of generation at the Hunters Point Power Plant and the Potrero Power Plant and that the concerns and issues voiced by all stakeholders are an important part of deciding how best to serve the demand for energy in San Francisco. The ISO also believes that all parties share a common goal of providing the City¹ with reliable, secure and environmentally responsible electric service and that, although complex, resolving the issues that constrain the retirement of generation in San Francisco is obtainable over time. To this end, the ISO remains fully committed to supporting the City and PG&E in successfully achieving their goals while maintaining the reliability needs of the entire San Francisco Peninsula Area.

On April 15, 2004, ISO and PG&E representatives met to discuss the retirement of Hunters Point and the transmission upgrades necessary to allow the ISO to discontinue extending the Reliability Must Run ("RMR") Agreement for any of the Hunters Point units. ISO staff has worked closely with PG&E to make sure that all load serving capability, RMR, and operational reliability issues have been appropriately identified and addressed in PG&E's 2003 transmission expansion plan. In addition, PG&E informed the ISO that it intends to move forward with replacing the insulators on the San Mateo 230kV bus to eliminate the need to perform required maintenance washes during the summer months. This decision resolves the final operational reliability issue that, based on current studies, required the continued operation of Hunters

¹ In the testimony for the Jefferson-Martin Transmission Line, currently before the California Public Utilities Commission, the ISO refers to the City and County of San Francisco and the San Francisco Peninsula as the "San Francisco Peninsula Area." For clarity in this letter, the ISO will delineate separately, when necessary, the City, the Peninsula, and the Greater Bay Area even though the City is included in the Peninsula, which is included in the Greater Bay Area.

From: CALIFORNIA ISO

916 351 2350

07/01/2004 11:34 #061 P.003/013

Point Unit 1 beyond 2005. Therefore, based on PG&E's completion of the 2003 Transmission Expansion Plan items outlined in your May 4, 2004 letter prior to the end of 2005 and the other critical assumptions listed below, the ISO anticipates being able to discontinue renewing the RMR Agreement for Hunters Point Units 1, 2, 3, and 4 for 2006.

As stated in their May 4, 2004 letter, PG&E shares the ISO's commitment to retiring Hunters Point in a manner that assures adequate load serving capability and system reliability. And while the ISO and PG&E are in agreement on what is needed to remove the Hunters Point facilities from their RMR designations at the end of 2005, this agreement is predicated upon the expectation that the retirement of these units will not unduly jeopardize reliable electric service to PG&E's customers in the City and the San Francisco Peninsula Area. Put another way, the ISO's support for retiring generation in the City is based on certain "critical assumptions" that are reasonably expected to occur. Of significant importance is the successful retrofit of Potrero Unit 3 with selective catalytic reducers. Retrofitting Potrero 3 has constituted a "critical assumption" in all conclusions that the ISO has presented to the parties today and in all previous ISO correspondence. Reiterating previous statements, the ISO has not studied or prepared scenarios without Potrero Unit 3 in place. Therefore, it should be clearly understood that the technical conclusions that allow for the retirement of generation at Hunters Point would be altered should Potrero Unit 3 not be able to operate beyond 2005. Notwithstanding the continued operation of Potrero Unit 3, other "critical assumptions" such as an accelerated increase in local area load growth, the unexpected retirement and/or failure of other local area generation in the Greater Bay Area, and/or the unexpected failure of critical elements of the transmission system that supports the City and San Francisco Peninsula Area, among others, would also have an impact on the ISO's technical conclusions that allow for the ISO to discontinue renewing the RMR Agreement for Hunters Point. While changes in these "critical assumptions" are uncontrollable, the ISO remains committed to work with PG&E to retire the Hunters Point facility by the end of 2005. It is anticipated that the ISO Board will make the final decision at its September 2005 meeting.

Of particular concern to the ISO is the timely completion of the Jefferson – Martin 230kV Transmission Project and the inability of Hunters Point Unit 4 to operate beyond 2005 due to Bay Area Air Quality issues. Even though PG&E clearly remains dedicated to completing this project on time, a reasonable probability still remains that Jefferson – Martin could be delayed until sometime in 2006. As the ISO stated in its October 22, 2003 letter to Supervisor Sophie Maxwell, securing the necessary interchangeable emission reduction credits ("IERC") to operate Hunters Point Unit 4 beyond 2005 is the responsibility of PG&E as the plant owner. In PG&E's direct testimony regarding the need for the Jefferson – Martin 230kV Transmission Project submitted to the Public Utilities Commission of the State of California, PG&E correctly acknowledged that the ISO would require PG&E to delay closure of Hunters Point until the Jefferson – Martin 230kV Transmission Project becomes operational.² Based on this testimony, it is the ISO's understanding that PG&E will take the required steps to secure the necessary IERCs to operate Hunters Point Unit 4 beyond 2005 should the need arise. The ISO believes this to be a prudent and necessary step to assure that San Francisco area reliability can be sufficiently maintained should the operation of Jefferson – Martin be unavoidably delayed.

On May 28, 2004 the ISO received a letter from Gavin Newsom, Mayor of San Francisco and Sophie Maxwell, Member of the Board of Supervisors asking for the ISO's continued assistance in helping the City plan for cleaner, more reliable and more efficient electric resources. The May 28, 2004 letter posed several

² Direct Testimony of Pacific Gas and Electric Company Regarding Need for the Jefferson-Martin 230 kV Transmission Project, A.02-09-043 (Oct. 10, 2003), at p. 85-86.

From: CALIFORNIA ISO

916 351 2350

07/01/2004 11:34 #061 P.004/013

questions that relate to generation facilities at Hunters Point and Potrero. These questions are restated below in italics followed by the ISO's answer.

Q1a) *The City seeks a commitment by the ISO to release Hunters Point Units 1 and 4 from any RMR obligations no later than December 2005.*

A1a) As stated above, based on PG&E's commitment to successfully complete the 2003 Transmission Expansion Plan items outlined in their May 4, 2004 letter, the ISO is in agreement with PG&E concerning the retirement of Hunters Point Power Plant. Assuming that these facilities are in operation prior to the end of 2005 and the other critical assumptions listed above allow the ISO to discontinue renewing the RMR Agreement for Hunters Point, the ISO would not renew the RMR Agreement for Hunters Point Units 1 and 4 for 2006. It is anticipated that the ISO Board at its September 2005 meeting will make the final decision.

Q1b) *The City seeks confirmation from the ISO that it will release Hunters Point Units 1 and 4 from any RMR obligations on completion of the transmission projects identified in the attachment to PG&E's May 4, 2004 letter.*

A1b) See A1a.

Q1c) *The City seeks a commitment by the ISO to release Hunters Point Units 1 and 4 from any RMR obligations provided that three turbines are connected to the internal San Francisco 115 kV transmission network and the eight transmission projects identified in your October 22, 2003 letter (which excludes Jefferson-Martin) are completed.*

A1c) Assuming the installed capacity of the City's three new combustion turbines is 145 MW, the information stated in the ISO's October 22, 2003 letter to Supervisor Maxwell and the matrix provided to the City in February 2004, is correct through 2006. Providing the transmission projects identified in these documents are in operation prior to the end of 2005 and the other critical assumptions listed above allow the ISO to discontinue renewing the RMR Agreement for Hunters Point, the ISO would not renew the RMR Agreement for Hunters Point Units 1 and 4 for 2006. It is anticipated that the ISO Board at its September 2005 meeting will make the final decision.

Q2) *The City would like to ensure the closure of all existing generation at Potrero as soon as possible. PG&E's May 2, 2004 letter suggests that this should be possible in the near future. PG&E's May 2, 2004 letter indicates that with the Jefferson-Martin and other transmission project set forth in the attachment to the letter, only 200 MW of generation would be needed north of San Mateo substation. If this is correct, the ISO should be able to release all existing Potrero units from any RMR obligation once 1) Jefferson-Martin and the other transmission project identified by PG&E are completed, 2) Hunters Point is closed, and 3) three new turbines at Potrero and a fourth turbine at the Airport are placed in service. Please confirm that this is correct. If this is not correct, please 1) explain why not, 2) detail which units at Potrero Power Plant could be released of any RMR obligations in this scenario, and 3) describe what additional resources or load reduction would be required to provide for the release of all of the Potrero Power Plant units from any RMR obligations.*

A2) As stated above and in the ISO's October 22, 2003 letter to Supervisor Maxwell, the ISO has not fully studied what grid enhancement would be necessary to enable the retirement of Potrero Unit 3.

From: CALIFORNIA ISO

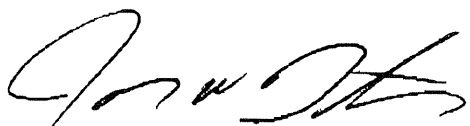
916 351 2350

07/01/2004 11:35 #061 P.005/013

Accordingly, the ISO is not prepared to provide an answer to this question at this time. However, the ISO recognizes the importance and significance the Potrero community and the City confers to the retirement of Potrero Unit 3 at the earliest possible time and remains committed to continue meeting with Potrero community group leaders to discuss the future need for Potrero 3. In order to address the lack of a plan to retire Potrero Unit 3 and in the spirit in which the ISO has committed to proactively work with the Potrero community group leaders, the ISO proposes to immediately begin working with the Potrero community group leaders, the City, and PG&E to develop a plan that would allow the ISO to discontinue renewing the RMR Agreement for Potrero Units 3, 4, 5, and 6 and that this effort be coordinated with the ongoing work that is currently being undertaken by the San Francisco Stakeholder Study Group.

I have endeavored to provide as complete an explanation as possible to the questions posed from all of you, at least based upon the information known today. As mentioned, we remain sincerely committed to work with you and affected communities to reach our mutual goal to obtain a reliable, affordable and environmentally responsible energy future. If you have any questions, please call Julie Gill at (916) 351-2221 or Gary DeShazo at (916) 608-5880.

Sincerely,



Jim Detmers
Vice President, Grid Operations
Acting Chief Operations Officer

Attachments

Cc:
Jesse Blout, City and County of San Francisco
Steve Huhman, Mirant
Armando J. Perez, ISO
Gary DeShazo, ISO
Julie Gill, ISO

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Cultural Resources

Author: Gary Reinoehl

SFERP Author: Doug Davy

BACKGROUND

The City and County of San Francisco state that the Meter House, a building that meets the eligibility requirements for the California Register of Historical Resources (CRHR), would be rehabilitated for use as an administrative and control building. The California Energy Commission as a state agency is mandated by Health and Safety Code 18961 to use the alternative provisions of these regulations and consult with the State Historical Building Safety Board to obtain its review prior to undertaking or making decisions on variances or appeals which affect historical buildings. Staff needs the following information to complete the assessment.

DATA REQUEST

19. Please provide a preliminary design for the Meter House that details changes in historic fabric and other alterations from the original design of the building.

Response: The City has hired Page & Turnbull to undertake this analysis and will provide the design as soon as it is available.

20. If a preliminary design is not yet available, please indicate a schedule for development and submission of the design.

Response: A draft of the analysis is scheduled for submittal to the CEC by August 20, 2004.

21. Please indicate alternative provisions (see Health and Safety Code 18961) that would be used in the rehabilitation of the Meter House.

Response: The preliminary analysis (referenced Data Response #19) will identify alternative provisions that may be required for the rehabilitation of the Meter House.

BACKGROUND

The City and County of San Francisco provided background documents for the Central Waterfront Cultural Resources Survey during the hearings for the Potrero Power Plant. The survey suggested that an eligible Central Waterfront Industrial District (CWD) exists within the survey boundary of Sixteen Street, Interstate 280, Islais Creek Channel and San Francisco Bay. The Central Waterfront Industrial District includes the Pier 70, the Dogpatch Historic District, and some buildings within the Potrero Power Plant parcel and the Spreckels Sugar Warehouses. The proposed power plant would place modern intrusions into the middle of the Central

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
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DATA RESPONSES, SET 1A**

Waterfront Industrial District. When the AFC was submitted, the CWD had not been designated as a historical resource under a local ordinance.

DATA REQUEST

22. Please provide copies of a designation or resolution if the City or County of San Francisco has designated the Central Waterfront Industrial District as an historic district or a significant resource under a local ordinance or by resolution.

Response: The City is not aware of a local ordinance or resolution by the SF Board of Supervisors designating the Central Waterfront Industrial District as an historic district or a significant resource. Rather, the Planning Commission on December 13, 2001, passed Motion No.16300 provided as Attachment CUL-22. That motion 1) endorsed the Central Waterfront Survey, with the exception of 3201 3rd Street, 651 Illinois, 590 Minnesota, 690-698 Minnesota, and 2085 Third Street, 2) directed that the findings of the survey be forwarded to the California Office of Historic Preservation for inclusion in the California Historical Resources Information System (CHRIS); and 3) directed that the findings of the survey be incorporated into the Planning Department database for use in reviewing building permit applications, as well as all other Planning Department actions. The Planning Department uses the finding of the survey in a variety of actions including reviews under CEQA.

23. Please provide copies of correspondence with the Office of Historic Preservation regarding the eligibility of the CWD for the CRHR.

Response: As described in the Response to Data Request #22 (above), the City of San Francisco Planning Commission adopted Resolution No. 16300, endorsing the Central Waterfront Cultural Resource survey. The City provided a copy of the survey to the California Office of Historic Preservation for inclusion in the California Historical Resources Information System. (A copy of the Planning Commission's Motion is provided as Attachment CUL-22). The City has not been able to locate the letter transmitting the survey to the Office of Historic Preservation but will continue to search for it and will provide it if it is located. The survey itself is about one and a half inches thick and will be provided if requested. The City is providing the District record as Attachment CUL-23.

BACKGROUND

Although no archeological resources were identified as a result of the records search and field survey performed by the applicant for the pipeline route needed for the Water Pipeline Corridor, it should be possible to identify potential subsurface resources that could be impacted by the pipeline construction. The 1899 Sanborn map suggests that portions of the pipeline would be placed in old land features, shoreline areas, and filled areas. Historical research and historic maps may indicate the locations of archeological resources along the pipeline route. An example of such a resource that could be impacted by the proposed pipeline is the San

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Francisco Cordage/ Tubbs Cordage ropewalk that appears on historic maps and is documented in several area historical resources inventories. In order to adequately identify potential impacts, staff needs additional information.

DATA REQUEST

24. Please complete a literature review and consult historic maps to identify potential subsurface cultural resources that could be impacted by the proposed pipelines. The literature review should include, but not be limited to, the following:
- Potrero 7: Phase 1 Cultural Resources Overview and Inventory (Wirth Associates 1979);
 - Central Waterfront Cultural Resources Survey (San Francisco Planning Department 2001); and
 - Dogpatch Historic District Survey (Christopher VerPlanck 2001).
 - Mirant Corporation response to staff Data Requests, Set 6, (Cultural Resources) Nos. 216 through 220, Cooling Tower System Amendment to the Potrero Power Plant Unit 7 Project (00-AFC-4). Submitted to California Energy Commission, September 11, 2003.

Response: As noted in the Applicant's Clarifications, Reservation of Objections, and Notices of Need for Additional Time in Response to the June 4 Data Requests filed on June 14, 2004 (the June 14, 2004 letter), the Applicant requested an additional 2 weeks to respond to this Data Request. A response will be submitted by July 19, 2004.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT CUL-22

Motion No. 16300

PLANNING COMMISSION

Central Waterfront Cultural Resource
Survey and Draft Context Statement, and
Dogpatch Cultural Resource Survey and
Context Statement;
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SAN FRANCISCO

PLANNING COMMISSION

MOTION NO. 16300

**ADOPTING FINDINGS RELATED TO THE ENDORSEMENT OF THE CENTRAL WATERFRONT
CULTURAL RESOURCE SURVEY AND DRAFT CONTEXT STATEMENT, AND THE DOGPATCH
CULTURAL RESOURCE SURVEY AND CONTEXT STATEMENT.**

Preamble

In October 2000, the City and County of San Francisco, through the San Francisco Planning Department, accepted a \$15,000 grant to partially fund an historic resource survey in the Central Waterfront area. Located within the larger Central Waterfront survey boundaries is the Dogpatch neighborhood, which was surveyed separately. The Certified Local Government (CLG) agreement between the City of San Francisco and the California Office of Historic Preservation dated August 18, 1995, requires the CLG to "Maintain a system for the survey and inventory of historic properties."

Between October 2000 and October 2001, the Planning Department, working with the Dogpatch Neighborhood Association, San Francisco Architectural Heritage and Page and Turnbull, Architects, have jointly developed the Central Waterfront Cultural Resource Survey and Draft Context Statement, and the Dogpatch Cultural Resource Survey and Context Statement.

Both the Central Waterfront and Dogpatch Context Statements describe the boundaries of the survey area, historic themes and time periods, property types found in the area, and the goals and priorities of the survey, which justify its endorsement. Both surveys were conducted according to the California Office of Historic Preservation's *Instructions for Recording Historic Resources* and the National Register of Historic Places criteria and methodology, as identified in National Register Bulletin No. 24, *Guidelines for Local Surveys*. Both surveys employed California Department of Parks and Recreation Survey Forms (DPR 523A and 523B) on resources within the survey boundaries.

The Central Waterfront and Dogpatch Cultural Resource Surveys are the first phase of a multi-year effort to document resources found in neighborhoods throughout San Francisco through the Planning Department's Citywide Cultural Resources Survey Program.

In September 2000, Planning Department staff gave informational presentations to both the Planning Commission and the Landmarks Preservation Advisory Board on the concept of a cultural resource survey, with specific information on the Central Waterfront and Dogpatch Cultural Resource Surveys also provided.

PLANNING COMMISSION

Central Waterfront Cultural Resource
Survey and Draft Context Statement, and
Dogpatch Cultural Resource Survey and
Context Statement;
Page 2

In August and September 2001, property owners within the survey boundaries were notified of their property's inclusion, provided with DPR 523A and 523B -- descriptive and evaluative survey forms relating to their property -- and were given 30 days to comment on the survey findings. To date, the Planning Department has received 10 inquiries from property owners, with two objections to the survey results received. Those resources, 3201 3rd Street and 651 Illinois, have been held out of the Central Waterfront Cultural Resource Survey endorsement process for further study, but will return to the Landmarks Board and Planning Commission for future endorsement.

Through historical research and photographs, the Central Waterfront Cultural Resource Survey documented 140 buildings, structures, sites and objects found within the following boundaries (excluding the Dogpatch neighborhood): 16th Street to the north, Interstate 280 to the west, Islais Creek to the south and San Francisco Bay to the east, Block/Lots: Block 3941; 3942/2, 3; 3943/3; 3944/4; 3992/2; 3994/1B, 1C, 2, 3; 3995/7, 15; 3996/ 4-6, 15, 18; 3997/3; 3998/17-18; 4042/2; 4043/12A, 13, 16; 4044/2A, 2-4; 4045/2; 4046/1; 4052/1; 4058/5, 9-10; 4059/1A, 1B, 1C, 2B, 9; 4105/9; 4108/3, 3A, 3B, 3D, 3F, 3J, 3M, 3N, 3O, 3R; 4109/1; 4111/1; 4172/3-5, 7, 15-16, 18-21; 4173/1; 4227/31; 4228/10; 4229/2-4; 4231/2; 4241/2-4; 4244/3-4; 4245/1-2; 4246/1; 4247/2; 4296/5; 4310/3; 4314/1A; 4316/2; 4352/7; 4353/9; 4355/6; 4357/3; 4358/7, 9; 4377/1; 4378/6; 9900/1, 68, 70, 84.

The Central Waterfront Draft Context Statement provides a history of San Francisco's Central Waterfront area, which includes the San Francisco Yard/Pier 70. The San Francisco Yard is one of San Francisco's earliest industrial complexes and is important nationally for production of military vessels for the Spanish American War, World War I and World War II.

Through historical research and photographs, the Dogpatch Cultural Resource Survey documented 123 buildings and structures found within the following boundaries (separate from the Central Waterfront Cultural Resource Survey): Minnesota and Tennessee Streets, odd and even addresses, from 18th Street to Tubbs Street, Blocks/Lots: 3996/4; 4043/1, 5-7, 9-14, 17; 4060/15; 4106/1-3, 14-16, 2E, 2F, 2G, 2L, 2M, 2O, 25; 4107/1-21, 2H, 5A, 9A, 11B; 4108/1-5, 12-15, 18-19, 1B, 2A, 2B, 2C, 2I, 2J, 2K, 2N, 3C, 3E, 3G, 3H, 3O, 3P, 14A; and 4171/2-3, 6-11, 34, 34B, 36; 4172/2, 4, 5, 6, 11, 13, 18, 25, 27-29, 32, 35, 011B, 018A, 031, 032.

The Dogpatch Context Statement provides a unique history of San Francisco's Dogpatch neighborhood. It finds the Dogpatch neighborhood significant as the oldest and most intact surviving concentration of industrial workers' housing in San Francisco.

Findings

Having reviewed all the materials identified in the recitals above, and having heard oral testimony and arguments, this Commission finds, concludes and determines as follows:

1. The Central Waterfront and Dogpatch Cultural Resource Survey information will be used by the Planning Department to:

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PLANNING COMMISSION

Central Waterfront Cultural Resource
Survey and Draft Context Statement, and
Dogpatch Cultural Resource Survey and
Context Statement;
Page 3

- a. Review building permit applications. Prior to the issuance of a building permit for work to be performed on a resource located within the boundaries of an adopted or endorsed cultural resource survey the Neighborhood Planning Unit, in consultation with a Planning Department historic preservation technical specialist, will review how the proposed work will impact the surveyed property.
 - b. Review projects under the California Environmental Quality Act (CEQA). CEQA requires evaluation of the potential for adverse impacts on historical resources eligible for listing in the California Register of Historical Resources. Such analysis would generally entail identification of the resource, description of the character defining features which make the resource historic, analysis of the potential adverse effects from a proposed alteration to or demolition of the resource, and, where appropriate, potential measures to reduce or avoid impacts to the resource.
 - c. Review projects under Section 106 of the National Historic Preservation Act. Under Federal Section 106, public agencies whose project sponsors are required to determine whether a proposed "undertaking" is a type of activity that could affect historic resources eligible for listing or included in the National Register of Historic Places.
2. The Central Waterfront and Dogpatch survey findings will increase property owner's potential eligibility for tax credits, grants and other preservation incentives by facilitating nomination of significant resources to local, state and national historic registers.
 3. Survey findings will make it possible for property owners to request that the provisions of the State Historic Building Code, a performance rather than a prescriptive-based code that promotes a more sensitive approach to the renovation and preservation of historic structures, be applied to any project for the preservation of existing character-defining features and historic fabric and materials, on both the interior and exterior of the structure.
 4. The Central Waterfront and Dogpatch survey findings may aid in the protection of historic resources located within the survey boundaries if resources are designated as landmarks or an historic district through the provisions of Article 10 of the Planning Code.
 5. Survey findings will assist the Planning Department with the on-going creation of a specific plan for the Central Waterfront area and the Dogpatch neighborhood as a component of the City's Better Neighborhoods 2002 project because they provide information regarding architectural and historic resources.

PLANNING COMMISSION

Central Waterfront Cultural Resource
Survey and Draft Context Statement, and
Dogpatch Cultural Resource Survey and
Context Statement;
Page 4

6. The Central Waterfront Cultural Resource Survey and the Dogpatch Cultural Resource Survey will be forwarded to the California Office of Historic Preservation for inclusion in the California Historical Resources Information System (CHRIS) – the State's official database of historic resources.
7. The Landmarks Preservation Advisory Board (Landmarks Board), at its regular meeting of October 17, 2001, reviewed the Dogpatch Cultural Resource Survey forms and Context Statement and reviewed correspondence and heard oral testimony on matters relevant to the endorsement of the Dogpatch Cultural Resource Survey and Context Statement. The Landmarks Board recommended that the Planning Commission adopt a motion endorsing the Dogpatch Cultural Resource Survey and Context Statement, pursuant to Article 10 of the Planning Code, by Landmarks Board Resolution #545.
8. The Landmarks Board, at its regular meeting of December 5, 2001, adopted Resolution #549, establishing procedures under which a property owner may request a review of the survey findings related to his or her property, and under which those findings may be amended through recommendation by the Landmarks Board and approval of the Planning Commission to reflect additional information presented by the property owner.
9. The Landmarks Board, at its regular meeting of December 5, 2001, reviewed the Central Waterfront Cultural Resource Survey forms and Central Waterfront Draft Context Statement and reviewed correspondence and heard oral testimony on matters relevant to the endorsement of the Central Waterfront Cultural Resource Survey and Central Waterfront Draft Context Statement. The Landmarks Board recommended that the Planning Commission adopt a motion endorsing the Central Waterfront Cultural Resource Survey and Draft Context Statement, *with the exception of 3201 3rd Street and 651 Illinois*, pursuant to Article 10 of the Planning Code, by Landmarks Board Resolution #548. Those resources, 3201 3rd Street and 651 Illinois, have been held out of the Central Waterfront Cultural Resource Survey endorsement process for further study, but will return to the Landmarks Board and Planning Commission for future endorsement.
10. The Landmarks Board, at its regular meeting of December 5, 2001, recommended that a global clarification on the assessment of physical condition on all surveyed resources be added that reads: *Information on the apparent physical condition of surveyed resources is not meant to suggest actual structural integrity.*
11. The Planning Commission at its regular meeting of December 13, 2001, heard public testimony from the San Francisco Port Commission and received Port Commission Resolution No. 01-99, which requests: "Therefore, (Port) staff recommends that the

PLANNING COMMISSION

Central Waterfront Cultural Resource
Survey and Draft Context Statement, and
Dogpatch Cultural Resource Survey and
Context Statement;
Page 5

survey forms for all Port-owned resources be modified to include the following standard qualification statement: *This building condition information is subject to confirmation following a detailed analysis of the resource by a licensed structural engineer.*

12. After consultation with the California Office of Historic Preservation and Port staff, the Planning Department has elected to remove physical condition from the Central Waterfront survey forms (excluding the Dogpatch Survey forms), because physical condition is not a requirement of the survey, or the CLG agreement by the state and the City and County of San Francisco.

Relevant Planning Code

Article 10, Section 1002(b)(1) authorizes the Planning Department and the Planning Commission to carry out, assist and collaborate in studies and programs designed to identify and evaluate structures, sites and areas worthy of preservation. A complete inventory of important cultural resources has been identified as Objective One in the Draft Preservation Element of the General Plan (dated June 2001).

DECISION

That based upon the Record, the submissions by the staff of the Planning Department and other interested parties, the oral testimony presented to this Commission at the public hearing, and all other written materials submitted by all parties, the Planning Commission hereby **ENDORSES** the Dogpatch Cultural Resource Survey (California Department of Parks and Recreation Survey Forms DPR 523A and 523B) and Context Statement, with the exception of 1155-1163 Tennessee and moved to endorse the Central Waterfront Cultural Resource Survey (California Department of Parks and Recreation Survey Form DPR 523A) for all resources contained within the Central Waterfront survey boundaries, and Draft Context Statement, with the exception of 3201 3rd Street, 651 Illinois, 590 Minnesota, 690-698 Minnesota, and 2085 Third Street and that it hereby **DIRECTS** that the findings of both surveys be forwarded to the California Office of Historic Preservation for inclusion in the California Historical Resources Information System (CHRIS); and that the findings of both surveys be incorporated into the Planning Department database for use in reviewing building permit applications, as well as all other Planning Department actions.

I hereby certify that the foregoing Motion was ADOPTED by the Planning Commission on December 13, 2001.

Linda D. Avery
Commission Secretary

AYES: Theoharris, Chinchilla, Fay, Joe, Lim, Salinas

NOES: None

ABSENT: Baltimore

ADOPTED: **December 13, 2001**

C:\TEMP\F.Notes.Data\CW&DogMotion.doc

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT CUL-23

District Record

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
DISTRICT RECORD

Primary #
HRI #
Trinomial

Page 1 of 4

*NRHP Status Code: Various

*Resource Name or # (Assigned by recorder): Central Waterfront

D1. Historic Name:

D2. Common Name: Central Waterfront

***D3. Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.): The boundaries of the Central Waterfront survey area/proposed district are 16th Street to the north, Interstate 280 to the west, Islais Creek to the south and San Francisco Bay to the east. The area consists of approximately 500 acres, is one and one-third miles long (north-south) and about two-thirds of a mile wide (east-west). It is largely located in the eastern Potrero Hill neighborhood and encompasses just a few blocks of the Bayview and Hunters Point neighborhoods at its southern end. The boundaries run along the city's eastern waterfront, midway between the head of Market Street and Hunters Point.

Elements of the district include individually surveyed buildings in the Central Waterfront Survey, prepared by the San Francisco Planning Department, as well as the Dogpatch Neighborhood Survey, prepared by Christopher Ver Planck, architectural historian. Two additional examinations of resources within the Central Waterfront area were conducted by Ward Hill, architectural historian, who completed DPR 523A forms on resources at the Station A, Potrero Power Plant. Michael Corbett, architectural historian, completed DPR 523A and B forms on resources located at 435 23rd Street - Western Sugar Refinery Warehouses - assigning a National Register Status Code of 3S to the warehouses. These additional studies have been included as appendices to the Central Waterfront Cultural Resources Survey Summary Report and Draft Context Statement prepared by the San Francisco Planning Department. They are approximated on the attached map as the "P G & E Area."

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements.):

The topography is flat and low, averaging between 10 feet to 20 feet above sea level. Industrial uses monopolize the length of the waterfront and begin to mix with retail, commercial and office spaces further inland along 3rd Street. A modest residential neighborhood, commonly referred to as Dogpatch, is tucked behind the 3rd Street corridor and is otherwise bordered by industrial buildings. The overall boundaries of the Central Waterfront survey area along with the boundaries of the Dogpatch neighborhood are shown on the attached map.

***D5. Boundary Justification:** The northern boundary is justified as it abuts the Mission Bay Redevelopment area, a large, vacant parcel of land currently being built upon. The eastern boundary is San Francisco Bay, a natural boundary. The southern boundary is justified as Islais Creek, which forms a distinct geographic form. Although the industrial development on Islais Creek's southern lands shares some of the same history, the building stock is not as coherent. The western boundary is Interstate 280, a large elevated freeway built over an older cut -- the Bayshore Cutoff -- a physical divide between the lower industrial lands and the upper residential building stock of Potrero Hill. To the northeast and southeast of the Central Waterfront, industrial lands and older building stock exist. While not surveyed, these resources may fit contextually with some of the existing Central Waterfront resources.

***D6. Significance: Theme:** Industrial Development and Settlement

Area: San Francisco's Central Waterfront

Period of Significance: 1854-1948

Applicable Criteria: None

(Discuss district's importance in terms

of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)

The Central Waterfront area, which includes the Dogpatch neighborhood, is historically significant as a mixed-use industrial and residential district; its period of significance spans from 1854 to 1948. Historical research and survey data indicates several distinct periods of history, which support various levels of integrity throughout the survey area. National Register Status Codes of 3B and 3D have been primarily assigned to resources located in the Pier 70 area of the Central Waterfront, which is identified below. The remaining resources with Status Codes of "3" are identified as well.

Early Manufacturing and Industry, 1854-1900

The earliest manufacturing businesses in the Central Waterfront included gunpowder and cordage production. In 1854, the E.I. du Pont de Nemours Company, one of the largest manufacturers of black gunpowder in the United States, constructed the first powder magazine on the south shore of Potrero Point. The earliest cordage industry was the San Francisco Cordage Manufactory; a pioneer rope-making factory established by brothers Alfred and Hiram Tubbs in 1857. The Kneass/Twigg Boat Works, assigned a National Register Status Code of 3B, is possibly the oldest commercial resource within the survey boundaries, constructed ca. 1878. The resource located at 2518-2520 Third Street was assigned a Status Code of 3D and represents a rare, surviving mixed-use structure from the Central Waterfront's early history. The resource located at 2636-2638 Third Street assigned a Status Code of 3B represents one of the oldest residences in the Central Waterfront from this early period of development, constructed ca. 1875.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
Trinomial

Page 2 of 4

Other Industry, 1867-1945

Throughout the course of its history, the dominant industry in the Central Waterfront has historically been iron works and the production of vessels at Pier 70 (discussed below). Other industries have historically had a comparable presence in the Central Waterfront, if at a smaller scale. Beginning in the 1880s with the construction of canneries, both fish and fruit, and production facilities for goods such as sugar, many of these industries built larger buildings more in scale with the iron works manufacturers. One such resource is the original portion of American Can Company located at 2301 Third Street, constructed in 1915, assigned a Status Code of 3B. At one time the largest manufacturer of tin cans in the United States, the company manufactured tin cans and canned fruit. Another cannery complex, the California Canneries Company located at 600 Minnesota Street, was constructed ca. 1900 and has been given a 3D Status Code.

Pier 70 — Central Waterfront's Iron Works Industry, 1867 — 1945

Note: National Register Status Codes have been assigned to the majority of resources in the Pier 70 area of the Central Waterfront, which are identified within the following periods.

Pacific Rolling Mills/Riedon Iron Works/U.S. Steel; Atlas Iron/Thornycroft Boilermakers; Union Iron Works; U.S. Shipbuilding; and Bethlehem Steel Corp. There are no known surviving buildings, structures or objects from the U.S. Shipbuilding or Atlas Iron/Thornycroft years of operation, although there may be archeological remains. Buildings conformed to the block pattern and were not built in the path of unopened streets.

Union Iron Works Period, 1883 to 1902. From 1883 until the end of World War II, Union Iron Works remained the most important industry in the Central Waterfront area and the largest employer of local residents, employing anywhere between a quarter to half of local residents.

First Bethlehem Steel Period, 1905-1940. The First Bethlehem Steel Period from 1905-1940 is a continuation of the Union Iron Works period. After 1915, Bethlehem Steel doubled in size with the acquisition of Pacific Rolling Mills, Riedon Iron and U.S. Steel.

Bethlehem Steel/World War II Period, 1940-1945. This period was one of cooperation between the federal government and Bethlehem Steel. The buildings were, in most cases, designed, built and owned by the government on joint-Bethlehem Steel and government-owned land. In 1940, the City and County of San Francisco Board of Supervisors vacated streets within Block 4052 with Resolution #1376, thereby allowing the construction of more buildings on vacant land for the increased production of military vessels during World War II. Of Pier 70's approximately 50 remaining historic resources, half date from the Bethlehem Steel/WWII period of significance, 1940-1945.

Tunnels and Bridges

Tunnels and bridges resources within the Central Waterfront survey area the 22nd and 23rd street bridges and the Bayshore Cutoff Tunnels # 1 and #2, all of which have been assigned National Register Status Codes of 3D. The Bayshore Cutoff was constructed from San Bruno to San Francisco on ten miles of infill from 1904 through 1907 to divert the increasingly longer trains from an original route over the San Bruno Mountains. Bayshore topography required the construction of five tunnels between Mariposa Street and the freight yards, which were built at Visitation Point. Four brick and concrete tunnels were constructed between 1904 and 1907, when the Southern Pacific rerouted its coast division's Peninsula Railroad from the Ocean View line -- to a cut-off along the eastern shore of San Francisco to Brisbane -- where the line rejoined the railway. The Bayshore Cutoff tunnels and corresponding bridges represent Southern railroad's influence on the development of San Francisco, the Central Waterfront and Mission Bay in particular.

Irish Hill

Irish Hill, historically a small residential enclave of eight blocks was located between Illinois, Maryland, 20th and Humboldt Streets in the Central Waterfront. Over the past 100 years, the hill has been reduced in size to the extent that only a "T" shaped portion remains. Assigned a National Register Status Code of 3D, Irish Hill represents two major significant themes.

First, it represents the extent to which industry has made the land in the survey area conform to its needs through a system of quarrying and filling in of the San Francisco Bay -- primarily at the Union Iron Works site located to the north. Second, Irish Hill represents the last testament of an entire residential neighborhood. Irish Hill was by all accounts a solid working-class district comprised mostly of single, Irish male immigrants employed in the Central Waterfront.

Conclusion

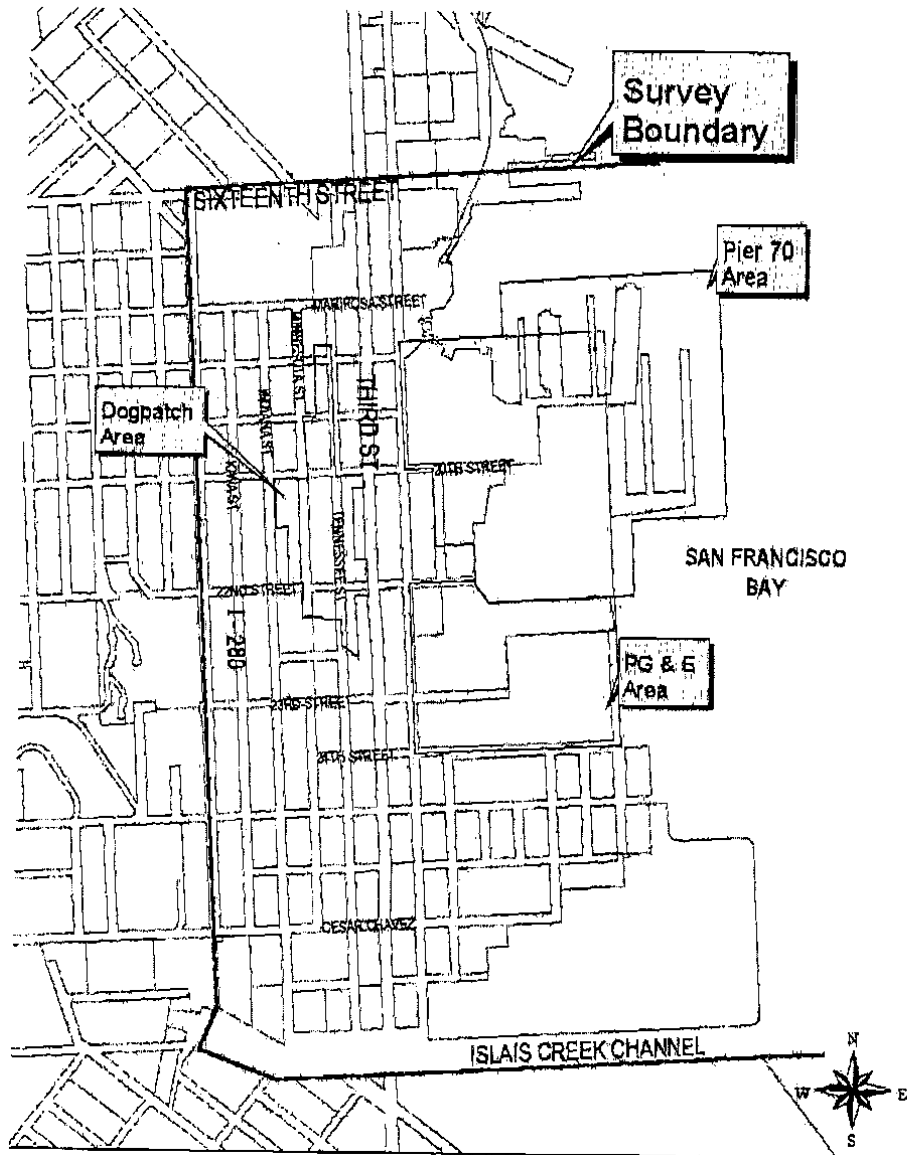
All of these resources contribute to a potential National Register historic district as it relates to the development of the Central Waterfront as a mixed industrial and residential district, 1854-1948. The district is significant at a local level under National Register Criterion A: Resources that are associated with events that have made a significant contribution to the broad patterns of our history. The resources are also contributors to a locally designated historic district.

*D7. **References** (Give full citations including the names and addresses of any informants, where possible.):

*D8. **Evaluator:** Tim Kelley, historian

Date: July 20, 2001

Affiliation and Address: Central Waterfront Survey Advisory Committee member, City and County of San Francisco Planning Department, 1860 Mission Street, 5th floor, San Francisco, CA 94103-2414.



**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Geologic Hazards and Resources

Author: Dr. Patrick Pilling, P.E., G.E.

SFERP Author: Tom Lae, R.G.

BACKGROUND

Section 8.15.3.5 and 8.15.3.5.6 state that a site-specific geotechnical investigation has been conducted at the project site. Site-specific subsurface information is critical in assessing potential geologic hazards.

DATA REQUEST

25. Please submit a copy of the site-specific geotechnical investigation, as well as any other geotechnical investigations, for this site.

Response: The Final Geotechnical Report for the SFERP has been completed and is provided as Attachment GEO-25. No additional geotechnical investigations were conducted by the Applicant, or have been provided to it.

BACKGROUND

Section 8.15.3.5.3 of the AFC states that the depth to ground water at the site is approximately 15 feet, while Appendix 10G.3.4 states the depth to ground water is approximately 30 feet. The depth to ground water is critical in assessing liquefaction potential.

DATA REQUEST

26. Please clarify/verify the depth to ground water at this site.

Response: Depth to groundwater varies across the site due to a number of factors. The site can be divided into two halves—a shallow bedrock area on the north side and a deep fill area on the south side of the site. In the shallow bedrock area, groundwater is very shallow (5 feet). In the deep fill area, groundwater is deeper (12 to 22 feet). The geotechnical report addresses liquefaction potential across the site. As stated in the report, the shallow bedrock area contains dense to dense formational material that is not considered liquefiable. However, in the deep fill area, a zone was identified as having a high potential for liquefaction. A detailed discussion of liquefaction is provided in the geotechnical report.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT GEO-25

Geotechnical Report, Potrero Power Plant

Five copies of the Geotechnical Report for the Potrero Power Plant, dated June 2004 have been provided to the California Energy Commission. Additional copies may be provided upon request.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Hazardous Materials Management

Author: Alvin Greenberg, Ph.D.

SFERP Author: Karen Parker

BACKGROUND

Table 8.12-4 of the AFC indicates that an antiscalant will be used by the proposed SFERP to prevent scale in reverse osmosis membranes. In order to adequately analyze potential impacts from this facility, the identity of all proposed chemicals is required.

DATA REQUEST

27. Please provide the MSDS for the antiscalant proposed for use at the SFERP.

Response: The preliminary selection of an antiscalant is GE Betz Hypersperse MSI130. The MSDS for this antiscalant is provided as Attachment HM-27.

28. Please provide the MSDS for the Coagulant Aid Polymer (NALCO NALCOLYTE 8799), the Corrosion Inhibitor (NALCO 8305 Plus), and the Dispersant (NALCO TRASAR 23263) proposed for use at the SFERP.

Response: The following MSDS's are provided as Attachment HM-28:

- Coagulant Aid Polymer, NALCO NALCOLYTE 8799
- Corrosion Inhibitor, NALCO 8305 Plus
- Dispersant NALCO TRASAR 23263

BACKGROUND

In order to fully assess impacts from the transportation of aqueous ammonia, the identity and location of the ammonia supplier is necessary.

DATA REQUEST

29. Please provide the name and location of the aqueous ammonia supplier the City plans to use.

Response: The aqueous ammonia supplier will be selected during the construction and commissioning phases of the project consistent with City procurement requirements. Aqueous ammonia suppliers in the area that may be considered are:

Supplier	Shipping Location
Basic Chemical Solutions, LLC	Lathrop, CA
LA Chemical	San Jose, CA
Hill Brothers Chemicals Company	San Jose, CA

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT HM-27

MSDS for Antiscalant GE Betz Hypersperse

**GE Betz**

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 12-FEB-2003

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

HYPERSPERSE MSI310

PRODUCT APPLICATION AREA:

REVERSE OSMOSIS ANTISCALANT

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: Slight; Appearance: Amber, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause moderate irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 213F > 101C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

This product is not hazardous as defined by OSHA regulations.

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.130	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	23	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-5		
Viscosity(cps 70F, 21C)	21	% Solubility (water)	100.0

Odor		Slight
Appearance		Amber
Physical State		Liquid
Flash Point	P-M(CC)	> 213F > 100C
pH As Is (approx.)		4.7
Evaporation Rate (Ether=1)		< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT: >2,000 mg/kg

NOTE - Estimated value

Dermal LD50 RABBIT: >2,000 mg/kg

NOTE - Estimated value

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Acute Bioassay

0% Mortality= 2000 mg/L

Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal

0% Mortality= 2000 mg/L

Rainbow Trout 96 Hour Static Bioassay with 48-Hour Renewal

0% Mortality= 2000 mg/L

BIODEGRADATION

BOD-28 (mg/g): 1

BOD-5 (mg/g): 1

COD (mg/g): 205

TOC (mg/g): 64

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
UN / NA NUMBER: Not applicable
DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION**TSCA:**

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

POTABLE WATER APPROVAL:

NSF certified. Maximum use 10 mg/L

SARA SECTION 312 HAZARD CLASS:

Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION**CALIFORNIA SAFE DRINKING WATER AND TOXIC****ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:**

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION**NFPA/HMIS****CODE TRANSLATION**

Health	1	Slight Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	---	-----
MSDS status:	31-MAY-2000		** NEW **
	17-AUG-2000	15	31-MAY-2000
	02-AUG-2001	12	17-AUG-2000
	31-JAN-2002	11	02-AUG-2001
	05-FEB-2002	12	31-JAN-2002
	12-FEB-2003	16	05-FEB-2002

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT HM-28

**MSDS for Coagulant Aid Polymer, Corrosion
Inhibitor, and Dispersant**



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCOLYTE® 8799

EMERGENCY TELEPHONE NUMBER(S)

(800)463-3216 (24 Hours)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCOLYTE® 8799**

APPLICATION : COAGULANT, DEWATERING AID

COMPANY IDENTIFICATION :
Nalco Canada Co.
1055 Truman Street
Burlington, Ontario
L7R 3Y9

EMERGENCY TELEPHONE NUMBER(S) : (800)463-3216 (24 Hours)

NFPA 704M/HMIS RATING

HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Based on our hazard evaluation, none of the substances in this product are hazardous.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION

May cause irritation with prolonged contact.

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.

Wear suitable protective clothing.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

May cause irritation with prolonged contact.

SKIN CONTACT :

May cause irritation with prolonged contact.

INGESTION :

Not a likely route of exposure. No adverse effects expected.

INHALATION :

Not a likely route of exposure. No adverse effects expected.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCOLYTE® 8799

EMERGENCY TELEPHONE NUMBER(S)

(800)463-3216 (24 Hours)

HUMAN HEALTH HAZARDS - CHRONIC :

No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :

Flush affected area with water. If symptoms develop, seek medical advice.

SKIN CONTACT :

Remove contaminated clothing. Wash off affected area immediately with plenty of water. If symptoms develop, seek medical advice.

INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

INHALATION :

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

Flash Point : None

EXTINGUISHING MEDIA :

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

SENSITIVITY TO MECHANICAL IMPACT :

Not expected to be sensitive to mechanical impact.

SENSITIVITY TO STATIC DISCHARGE :

Not expected to be sensitive to static discharge.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :

Notify appropriate government, occupational health and safety and environmental authorities. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).



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METHODS FOR CLEANING UP :

SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :

This product is toxic to fish. It should not be directly discharged into lakes, ponds, streams, waterways or public water supplies.

7. HANDLING AND STORAGE

HANDLING :

Do not take internally. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labelled. Avoid eye and skin contact.

STORAGE CONDITIONS :

Store separately from oxidizers. Store the containers tightly closed.

SUITABLE CONSTRUCTION MATERIAL :

Nylon, Stainless Steel 316L, Hastelloy C-276, Kalrez, EPDM, Alfax, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use., PVC, Teflon, HDPE (high density polyethylene), Polyurethane, Ethylene propylene, Polypropylene, Polyethylene, Stainless Steel 304

UNSUITABLE CONSTRUCTION MATERIAL :

Copper, Plexiglass, Brass, Buna-N, Natural rubber, Hypalon, Viton, Neoprene, Aluminum, Mild steel

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :

This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :

General ventilation is recommended.

RESPIRATORY PROTECTION :

Respiratory protection is not normally needed.

HAND PROTECTION :

Nitrile gloves, PVC gloves

SKIN PROTECTION :

Wear standard protective clothing.

EYE PROTECTION :

Wear chemical splash goggles.



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HYGIENE RECOMMENDATIONS :

Keep an eye wash fountain available. Keep a safety shower available.

HUMAN EXPOSURE CHARACTERIZATION :

Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light yellow
ODOR	None
SPECIFIC GRAVITY	1.13 @ 21 °C
SOLUBILITY IN WATER	Complete
pH (100 %)	4.0 - 5.0
VISCOSITY	800 - 1,500 cps @ 24 °C
BOILING POINT	105 °C
VAPOR DENSITY	Same as water
VOC CONTENT	0.00 %

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Freezing temperatures.

MATERIALS TO AVOID :

Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCOLYTE® 8799****EMERGENCY TELEPHONE NUMBER(S)****(800)463-3216 (24 Hours)****ACUTE ORAL TOXICITY :**

Species	LD50	Test Descriptor
Rat	> 15,380 mg/kg	Product

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	> 3,000 mg/kg	Product

ACUTE INHALATION TOXICITY :

Species	LC50	Exposure	Test Descriptor
Rat	> 12.5 mg/l		Product

PRIMARY SKIN IRRITATION :

Draize Score	Test Descriptor
0.2 / 8.0	Product

PRIMARY EYE IRRITATION :

Draize Score	Test Descriptor
0.2 / 110.0	Product

SENSITIZATION :

This product is not expected to be a sensitizer.

CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL EFFECTS :**

The tests for (products or similar products) were performed in clean water as set forth by USEPA (EPA/600/4-90/027). In order to evaluate the potential toxicity mitigation, the tests for (representative polymers) were performed in environmentally relevant water with dissolved organic carbon (DOC: 4.5 mg/l). The toxicity of this product is due to an external mode of action, e.g., suffocation or immobilization. In the presence of suspended material, e.g., DOC, the polymers are bound to suspended material and the bioavailability is substantially reduced. As a result, the toxicity is expected to be lower. Under normal use and discharge conditions, the LC50 values of the representative polymers tested in the presence of DOC are expected to apply to this product. However, for large spills, the clean water data is more applicable.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	0.470 mg/l	Similar product tested in clean water
Bluegill Sunfish	96 hrs	0.9 mg/l	Similar product tested in clean water
Sheepshead Minnow	96 hrs	> 1,000 mg/l	Similar product tested in clean water

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCOLYTE® 8799****EMERGENCY TELEPHONE NUMBER(S)****(800)463-3216 (24 Hours)**

Fathead Minnow	96 hrs	0.9 mg/l	Similar product tested in clean water
Zebra Danio	96 hrs	10 - 100 mg/l	Representative polymer tested in water with DOC

Rating : Very toxic

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	97 mg/l		Similar product tested in clean water

Rating : Slightly toxic

ADDITIONAL ECOLOGICAL DATA:

NOEC on earthworm: > 1000 mg/l (representative polymer)

MOBILITY :

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM , provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models. If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL

This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: High

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

OTHER INFORMATION

The hazard characterization is based on the tests or potential hazard in the clean water.

13. DISPOSAL CONSIDERATIONS

In Ontario, the waste class under Regulation 347 is: 233L

Dispose of wastes in an approved incinerator or waste treatment/disposal site, in accordance with all applicable regulations. Do not dispose of wastes in local sewer or with normal garbage.



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14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION :

Not considered a WHMIS controlled product.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

NATIONAL POLLUTANT RELEASE INVENTORY (NPRI) :

This product does not contain any substances listed in Schedule I of the NPRI at a concentration of one percent or more by weight.

NATIONAL REGULATIONS, USA :

TOXIC SUBSTANCES CONTROL ACT (TSCA) :

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

16. OTHER INFORMATION

NIN500466

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Moderate

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.



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(800)463-3216 (24 Hours)

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

Prepared By : SHE Department

Date issued : 2004/02/29

Version Number : 1.4



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 8305 PLUS

EMERGENCY TELEPHONE NUMBER

(800)462-5378 (24 Hours) (800) I-M-ALERT

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 8305 PLUS**

APPLICATION : COOLING WATER TREATMENT

CHEMICAL DESCRIPTION : Substituted triazole, Phosphate, Organic acid derivative, Water

COMPANY IDENTIFICATION : Nalco Chemical Company
One Nalco Center
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER : (800)462-5378 (24 Hours) (800) I-M-ALERT

NFPA 704M/HMIS RATING

HEALTH : 1 / 2 FLAMMABILITY : 1 / 1 REACTIVITY : 0 / 0 OTHER :

0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Sodium Tolyltriazole	64665-57-2	1.0 - 5.0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

Irritating to eyes and skin.

Do not get in eyes, on skin, on clothing. Do not take internally. Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Protect product from freezing.

Wear suitable protective clothing, gloves and eye/face protection.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

Can cause moderate irritation.



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SKIN CONTACT :

Can cause moderate irritation.

INGESTION :

Not a likely route of exposure. No adverse effects expected.

INHALATION :

Not a likely route of exposure. Aerosols or product mist may irritate the upper respiratory tract.

SYMPTOMS OF EXPOSURE :

Acute :

A review of available data does not identify any symptoms from exposure not previously mentioned.

Chronic :

A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :

A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :

Immediately flush eye with water for at least 15 minutes while holding eyelids open. If irritation persists, repeat flushing. Get immediate medical attention.

SKIN CONTACT :

Immediately flush with plenty of water for at least 15 minutes. If symptoms persist, call a physician.

INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :

Remove to fresh air, treat symptomatically. Get medical attention.

NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :

This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Keep containers cool by spraying with water. Use extinguishing media appropriate for surrounding fire.



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FIRE AND EXPLOSION HAZARD :

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :

Restrict access to area as appropriate until clean-up operations are complete. Ensure clean-up is conducted by trained personnel only. Ventilate spill area if possible. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :

SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Wash site of spillage thoroughly with water. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :

Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :

Avoid eye and skin contact. Do not take internally. Do not get in eyes, on skin, on clothing. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labelled. Keep the containers closed when not in use. Use with adequate ventilation.

STORAGE CONDITIONS :

Store the containers tightly closed. Store in suitable labelled containers.

UNSUITABLE CONSTRUCTION MATERIAL :

Product is corrosive to aluminum. Aluminum should not be used for feed, storage, or transportation systems.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :

This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :

General ventilation is recommended.

RESPIRATORY PROTECTION :

Respiratory protection is not normally needed.



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HAND PROTECTION :

Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

SKIN PROTECTION :

Wear standard protective clothing.

EYE PROTECTION :

Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Keep an eye wash fountain available. Keep a safety shower available.

HUMAN EXPOSURE CHARACTERIZATION :

Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE Liquid

APPEARANCE Light yellow

ODOR Sweet, Organic

SPECIFIC GRAVITY 1.38 - 1.42 @ 77 °F / 25 °C

DENSITY 11.5 - 11.8 lb/gal

SOLUBILITY IN WATER Complete

pH (100 %) 11.5 - 13.0

VISCOSITY 7 cps @ 71 °F / 21.7 °C

FREEZING POINT < -50 °F / < -45.6 °C

10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Freezing temperatures

MATERIALS TO AVOID :

Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Contact with strong acids (e.g. sulfuric,



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phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :

This product is not expected to be a sensitizer.

CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: Moderate

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

ACUTE FISH RESULTS :

Species	Exposure	LC50	Tested Substance
Bluegill Sunfish	96 hrs	450 mg/l	Product
Rainbow Trout	96 hrs	610 mg/l	

Rating : Essentially non-toxic

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Tested Substance
Daphnia magna	48 hrs	> 1,000 mg/l		Product

Rating : Essentially non-toxic

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 23,000 mg/l

Chemical Oxygen Demand (COD) : 57,000 mg/l

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High



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If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste. Special Waste Regulations 1996 apply.

Hazardous Waste: D002

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

14. TRANSPORT INFORMATION

Proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are:

LAND TRANSPORT :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	POTASSIUM HYDROXIDE, TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	3266
Hazard Class - Primary :	8
Packing Group :	III
Flash Point :	None

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	POTASSIUM HYDROXIDE, TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	3266
Hazard Class - Primary :	8
Packing Group :	III
IATA Cargo Packing Instructions :	820
IATA Cargo Aircraft Limit :	60 L (Max net quantity per package)

MARINE TRANSPORT (IMDG/IMO) :

IMDG Page :	8147-1
Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	POTASSIUM HYDROXIDE, TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	3266



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Hazard Class - Primary :

8

Packing Group :

III

15. REGULATORY INFORMATION

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :

Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Sodium Tolyltriazole : Irritant

CERCLA/SUPERFUND, 40 CFR 117, 302 :

Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :

This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following EPA hazard categories:

X	Immediate (Acute) Health Hazard
-	Delayed (Chronic) Health Hazard
-	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :

This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :

The chemical substances in this product are on the TSCA 8(b) Inventory (40 CFR 710).

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR / formerly Sec. 311 :

None of the substances are specifically listed in the regulation.



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CLEAN AIR ACT, Sec. 111 (40 CFR 60, Volatile Organic Compounds), Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
None of the substances are specifically listed in the regulation.

CALIFORNIA PROPOSITION 65 :

This product does not contain substances which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS :

None of the substances are specifically listed in the regulation.

STATE RIGHT TO KNOW LAWS :

None of the substances are specifically listed in the regulation.

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION :

E - Corrosive Material

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

All substances in this product are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

16. OTHER INFORMATION

None

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Moderate

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.



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REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, Co.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO

Prepared By : Product Safety Department

Date issued : 07/11/2000

Replaces : 06/24/1998



MATERIAL SAFETY DATA SHEET

PRODUCT

TRASAR® 23263

EMERGENCY TELEPHONE NUMBER

(800)462-5378 (24 Hours) (800) I-M-ALERT

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **TRASAR® 23263**

APPLICATION : COOLING WATER TREATMENT

CHEMICAL DESCRIPTION : Water, Acrylate polymer(s), Tracer

COMPANY IDENTIFICATION :
Nalco Chemical Company
One Nalco Center
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER : (800)462-5378 (24 Hours) (800) I-M-ALERT

NFPA 704M/HMIS RATING

HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 REACTIVITY : 0 / 0 OTHER :

0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Based on our hazard evaluation, none of the substances in this product are hazardous.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION

May cause irritation with prolonged contact.

Do not get in eyes, on skin, on clothing. Do not take internally. Wear suitable protective clothing. Keep container tightly closed. Flush affected area with water. Protect product from freezing.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

May cause irritation with prolonged contact.

SKIN CONTACT :

May cause irritation with prolonged contact.

INGESTION :

Not a likely route of exposure. May cause nausea and vomiting.



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INHALATION :

Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :

Acute :

A review of available data does not identify any symptoms from exposure not previously mentioned.

Chronic :

A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :

A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :

Flush affected area with water. If symptoms develop, seek medical advice.

SKIN CONTACT :

Flush affected area with water. If symptoms develop, seek medical advice.

INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

INHALATION :

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 212 °F / > 100 °C (PMCC)

EXTINGUISHING MEDIA :

This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.



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6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :

Restrict access to area as appropriate until clean-up operations are complete. Stop or reduce any leaks if it is safe to do so. Do not touch spilled material. Ventilate spill area if possible. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

METHODS FOR CLEANING UP :

SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :

Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :

Avoid eye and skin contact. Do not take internally. Ensure all containers are labelled. Keep the containers closed when not in use.

STORAGE CONDITIONS :

Store the containers tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :

This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :

General ventilation is recommended.

RESPIRATORY PROTECTION :

Respiratory protection is not normally needed.

HAND PROTECTION :

Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

SKIN PROTECTION :

Wear standard protective clothing.

EYE PROTECTION :

Wear chemical splash goggles.



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HYGIENE RECOMMENDATIONS :

Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

HUMAN EXPOSURE CHARACTERIZATION :

Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE Liquid

APPEARANCE Clear Amber

ODOR None

SPECIFIC GRAVITY	1.1 @ 77 °F / 25 °C
DENSITY	9.1 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	5
VISCOSITY	10 cps @ 71 °F / 21.66 °C
FREEZING POINT	26 °F / -3.33 °C
VAPOR PRESSURE	Same as water
VOC CONTENT	0.00 %

10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.

HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.

CONDITIONS TO AVOID :

Freezing temperatures.

MATERIALS TO AVOID :

Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur

11. TOXICOLOGICAL INFORMATION

The following results are for the polymer.

**MATERIAL SAFETY DATA SHEET****PRODUCT****TRASAR® 23263****EMERGENCY TELEPHONE NUMBER****(800)462-5378 (24 Hours) (800) I-M-ALERT****ACUTE ORAL TOXICITY :**

Species LD50
Rat > 5,000 mg/kg
Rating : Non-Hazardous

Tested Substance
Active Substance

PRIMARY SKIN IRRITATION :

Draize Score
0.0 / 8.0
Rating : Practically non-irritating

Tested Substance
Active Substance

PRIMARY EYE IRRITATION :

Draize Score
4.7 / 110.0
Rating : Minimally irritating

Tested Substance
Active Substance

CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL EFFECTS :**

The following results are for the polymer. The following results are for a similar product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Tested Substance
Bluegill Sunfish	96 hrs	> 1,000 mg/l	Active Substance
Rainbow Trout	96 hrs	> 1,000 mg/l	Active Substance

Rating : Essentially non-toxic

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Tested Substance
Daphnia magna	48 hrs	> 1,000 mg/l		Active Substance
Mysid Shrimp (M. litoralis)	96 hrs	> 1,000 mg/l		Similar Product

Rating : Essentially non-toxic

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 18,000 mg/l

Chemical Oxygen Demand (COD) : 43,000 mg/l

Biological Oxygen Demand (BOD) :



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Incubation Period	Value	Tested Substance
	17,300 mg/l	Similar Product

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are:

LAND TRANSPORT :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING
TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING
TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING
TRANSPORTATION

15. REGULATORY INFORMATION

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :

Based on our hazard evaluation, none of the substances in this product are hazardous.



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CERCLA/SUPERFUND, 40 CFR 117, 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The chemical substances in this product are on the TSCA 8(b) Inventory (40 CFR 710).

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR / formerly Sec. 311 :
None of the substances are specifically listed in the regulation.

CLEAN AIR ACT, Sec. 111 (40 CFR 60, Volatile Organic Compounds), Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
None of the substances are specifically listed in the regulation.

CALIFORNIA PROPOSITION 65 :
This product does not contain substances which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS :
None of the substances are specifically listed in the regulation.

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Sodium Bisulfate	7681-38-1
Water	7732-18-5
Acrylic Polymer	20507700000-5034P
Substituted aliphatic aldehyde	20507700000-5313P

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.



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WHMIS CLASSIFICATION :

Not considered a WHMIS controlled product.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

All substances in this product are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, Co.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda MD.



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Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO

Prepared By : Product Safety Department

Date issued : 12/15/2000

Replaces : 08/23/1996

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Land Use

Author: David Flores

SFERP Author: Steven Smith

BACKGROUND

In the 1999, the City/County of San Francisco adopted an interim zoning control ordinance which provided for an Industrial Protection Zone and a Mixed Use Housing Zone within the Heavy Industrial zones in and around the project site. This was in response to the housing shortage needs within the San Francisco area.

DATA REQUEST

30. Please discuss whether this interim ordinance is still in effect or has been extended to allow loft-type housing developments in the industrially zoned areas.

Response: The interim zoning controls established by the Planning Commission in 1999 under Resolution 14861 were extended for a period of 9 months in November 2000 under Resolution 16079. Coincident with expiration of these interim zoning controls, the Planning Commission established resolution 16202 in August 2001. The resolution provides for an Industrial Protection Zone and a Housing Zone surrounding and in the vicinity of the proposed SFERP; the conversion of existing uses to office or residential uses is discouraged within the Industrial Protection Zone and mixed use housing development is encouraged within the Housing Zone.

Resolution 16202 is advisory in nature, non-binding, and provides policy guidance for the discretionary review of development proposals. The resolution remains in effect, with no set expiration date. (pers. comm. J. Rubin, CCSF, 6/18/04).

BACKGROUND

The proposed project site is still under the ownership of Mirant Potrero LLC. The Mirant property currently consists of ten assessor's parcel numbers totaling approximately 20 acres.

The application indicates that the project will be located on Assessor's Block 4175, Lot 6.

Assessor's parcels are not legal land division parcels. Assessor's parcels are generated by a County Assessor's Office as a means of placing a value on property or portion thereof for the purpose of property taxation in accordance to the California Revenue and Taxation Code. The County Assessor does not divide or create parcels of land in conducting this process. The assignment of an Assessor's Parcel Number to a property provides a convenient and quick location reference for the County Assessor to identify a property on the property assessment roll within a County. Legal land division parcels are established in accordance to the procedures

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DATA RESPONSES, SET 1A**

and the requirements set forth in the State Subdivision Map Act (Government Code section 66410 – 66499.58).

The status and number of legal parcels of record for this project is unknown based on the current information provided in the AFC.

DATA REQUEST

31. Please provide the legal description for the newly created parcel and revised parcel map.

Response: Please refer to the Applicant's Clarifications, Reservations of Objections, and Notices of Need for Additional time in Response to the June 4 Data Requests filed on June 14, 2004. The legal description is provided below and a parcel map is provided as Attachment LAND-31.

"All that real property situate, lying and being in the City and County of San Francisco, State of California and being a portion of Lot 6, as shown on that certain map entitled, " Record of Survey for Lot Line Adjustment," recorded April 23, 2002, in Book "AA" of Maps, Pages 13-14, in the Office of the Recorder, City and County of San Francisco, said portion being more particularly described as follows:

BEGINNING at a point on the northerly line of 23rd street, distant thereon North 86849' 44" East, 314.30 feet east of the easterly line of Illinois Street, also being on the westerly line of said Lot 6; thence northerly along said westerly line of said Lot 6 the following six courses:

- North 03810'16" West, 73.17 feet;
- North 32846'18" West, 72.56 feet;
- North 03810'16" West, 149.59 feet;
- South 86849'44" West, 15.75 feet;
- North 03841'19" West; 148.65 feet;
- North 87824'17" East, 76.76 feet;

thence leaving said westerly line of Lot 6, going easterly and southerly the following two courses:

- North 87824'17" East, 421.88 feet,
- South 03810'16" East, 433.72 feet to the northerly line of 23rd Street,

thence along said northerly line of 23rd Street South 86849'44" West, 417.52 feet to the POINT OF BEGINNING.

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DATA RESPONSES, SET 1A**

The basis of bearings in the above description is the assumed bearing of the Third Street monument line, between 22nd and 23rd Streets, taken as North 03810'16" East.

Being a portion of Potrero Nuevo Blocks 443 and 464. Also being a portion of Former Michigan and Georgia Streets as vacated pursuant to Resolution No. 21260, New Series, 7 May 1923 and portion of former Humboldt Street as vacated pursuant to Ordinance No. 116-67, 1 May 1967.

Containing 4.48 acres, more or less."

32. Please explain whether the applicant, as the City/County of San Francisco is going to be required to file a parcel map with the City's Public Works Office to create the parcel(s).

Response: Please see Applicant's Clarifications, Reservations of Objections, and Notices of Need for Additional time in Response to the June 4 Data Requests filed on June 14, 2004. As stated therein, the City is a municipal corporation. Thus, the conveyance of this property to the City is exempt from the Subdivision Map Act pursuant to Cal. Government Code section 66428(a). Therefore, the recordation of the deed describing the 4.5 acres creates the separate parcel and a parcel map is not required.

If not, explain the land division procedure used to create the parcel(s) totaling 4.5 acres.

33. Does the applicant have one legal parcel or some other number of parcels?

Response: The Applicant intends to obtain one legal parcel.

34. Provide a copy of the recorded final map, lot line adjustment map, or Certificate of Compliance for the property (ies).

Response: As stated in Applicant's Clarifications, Reservations of Objections, and Notices of Need for Additional time in Response to the June 4 Data Requests filed on June 14, 2004, for the reasons stated above in Data Response 32, the City does not now have and will not have a recorded final map or a lot line adjustment map. The City can provide the CEC with a copy of its ALTA survey before closing on the property, and a Certificate of Compliance at the time of closing. See also the response to Data Request #31.

BACKGROUND

A review of Figure 1.3 (Site Plan) and the other portions of the project description in the application did not provide enough information to indicate how the project relates to the proposed project site and local agency regulatory requirements. City/County of San Francisco Zoning Code (Article 1.2) provisions require that there be landscaping and building setbacks, adequate street right-of-way and street

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DATA RESPONSES, SET 1A**

improvements as necessary. Since the diagram (i.e., Figure 1.3) does not provide the above referenced regulatory information, it is difficult to ensure compliance with the City/County standards.

DATA REQUEST

35. Revise Figure 1.3 Site Map in the application to provide the following:

- a. Location of all existing exterior lot lines with distances to existing and proposed structures.

Response: A revised Site Map is provided as Figure 1-3R, attached hereto. Figure 1-3R shows the property boundaries and structure setbacks. The only existing structure to remain is the Meter House. The Meter House may be retrofitted and become the SFERP control room/administration building.

- b. Location of the centerlines of Humboldt Street, 23rd Street and Illinois Street with distances to existing, exterior property lines.

Response: The location of centerline for Humboldt and 23rd streets to the property boundary are provided in Figure 1-3R.

- c. Location of existing and proposed curbs and gutters with distances to exterior property lines.

Response: The existing curbs and gutters are shown in Figure 1-3R, and will be modified only to the extent necessary for accommodating the plant entrance.

- d. Locations with distances for any areas of building setback that will be landscaped.

Response: There is no plan for landscaping at this industrial location.

BACKGROUND

The City/County of San Francisco Sign Ordinance (Article 6) governs the size, location, and type of signs permitted on the project site. The AFC provides no discussion of the signs that will be used. It is not possible to demonstrate compliance with the City Zoning ordinance from existing data submitted.

DATA REQUEST

36. Provide details on the project's sign program that includes the following:

- a. The location, size and number of all signs proposed.
- b. The materials that will be used to construct the signs.
- c. The lighting technique that will be used for the signs.
- d. The height of all proposed signs.

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DATA RESPONSES, SET 1A**

- e. The type of signs to be used (For example, a monument sign or a building mounted sign).
- f. If signs will be located on buildings identify the distance from the surface of the sign to the surface of the structure to which it will be attached.
- g. Architectural renderings of all signs proposed.
- h. The content of each sign proposed.

Response: The project will comply in all respects to the guidelines of Planning Code, Article 6, Signs. As detailed plant design has not yet begun, details regarding both temporary construction and permanent plant identification signs has not yet been undertaken.

In general, the City requires construction signs as necessary to identify all effected construction locations. A construction sign will also be located at the construction laydown area. All signs will indicate the primary activity being undertaken at the location, i.e. construction offices, staging and laydown area, water supply line route, etc. General guidelines on construction signs that the City will follow are provided below.

The City will use discrete permanent building or plant identifications, building nameplates and signs. As the control room and administration building and other buildings are intended to be located far from public viewing access, the City does not currently envision using signs other than for the purpose of identifying the specific use, for plant personnel and visitors. The City currently anticipated that it will display adjacent to the main entrance on 23rd Street plant identification, address, emergency contact information, and a permanent project nameplate. The project nameplate will display pertinent plant information, the plant name, elected officials, licensing agencies, and date of construction. The emergency contact information will be displayed adjacent to the main gate. Final plans for signs will be subject to approval by the San Francisco Building Department, and City Architects.

Consistent with SFPUC practice, the aboveground access structure to the belowground pumping plant on Marine Street will not be identified due to its small size and safety/security concerns.

PROJECT IDENTIFICATION, CONSTRUCTION SIGNS

(General guidelines taken from a standard construction specification):

- A. Provide, where directed by the Engineer, a project sign in place at each location during the period of time that work is being performed at that location. The sign may be removed from any location where the work has been completed.
- B. The sign panel shall be 3-feet by 4-feet in size, and shall be 1/2-inch thick exterior grade plywood, good on one side. All exposed wood shall be painted bright yellow. Lettering shall be black. Lettering identifying the project title shall be 4 inches high. All other lettering shall be 3 inches high.

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(04-AFC-1)
DATA RESPONSES, SET 1A**

C. The sign shall bear the following inscription:

**MAYOR GAVIN NEWSOM
CITY AND COUNTY OF SAN FRANCISCO
SAN FRANCISCO PUBLIC UTILITIES COMMISSION (SFPUC)
HETCH HETCHY WATER & POWER
SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
145 MW POWER PLANT FACILITY
(Project Aspect, and Location)
CONTRACT _____
FOR INFORMATION, CALL SFPUC PUBLIC AFFAIRS
AT (415) 923-2466
(NAME OF CONTRACTOR) – CONTRACTOR
(Contractor's Phone Number)**

- D. Obtain the Resident Engineer's approval of locations and mounting details of the project signs.
- E. Maintain the sign in good condition for the duration of the contract. Promptly clean graffiti and other defacement from the project sign.
- F. Remove project sign from the site as Contractor's property at the completion of the Work.

BACKGROUND

The City/County of San Francisco Zoning Code (Article 1.2) restricts lot coverage in the Heavy Industrial Zoning District that includes the project site. The site plan does not provide calculations of the site area and the aerial extent of proposed roofed structures. This data is required to evaluate project compliance with zone lot coverage requirements.

DATA REQUEST

- 37. Provide calculations to show the project's consistency with the City of San Francisco's Heavy Industrial Zoning District lot coverage standards with respect to:
 - a. The aerial extent of the project site (i.e., the entire ultimate legal parcel(s) proposed for development) in square feet.

Response: The extent of the project is 4.48 acres or 195,149 square feet.

- b. The aerial extent of proposed and existing structures with roofs in square feet.

Response: For the proposed site development the coverage areas are as follows:

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DATA RESPONSES, SET 1A**

Type	Square Feet
Buildings	30,600
Tanks	4,450
Structures	14,630
Total	49,680

For the existing buildings/structures the coverage areas are as follows:

Type	Square Feet
Buildings	72,590
Structures	31,390
Total	103,980

BACKGROUND

The City/County of San Francisco Zoning Regulations requires parking spaces for the new industrial uses to be based on a ratio related to the number of employees. The Parking Regulations (Article 1.5) also require that loading spaces be designed to avoid interference with required parking access and circulation. Materials submitted by the applicant do not illustrate the location and number of parking spaces. This data is necessary to ensure compliance with City/County standards.

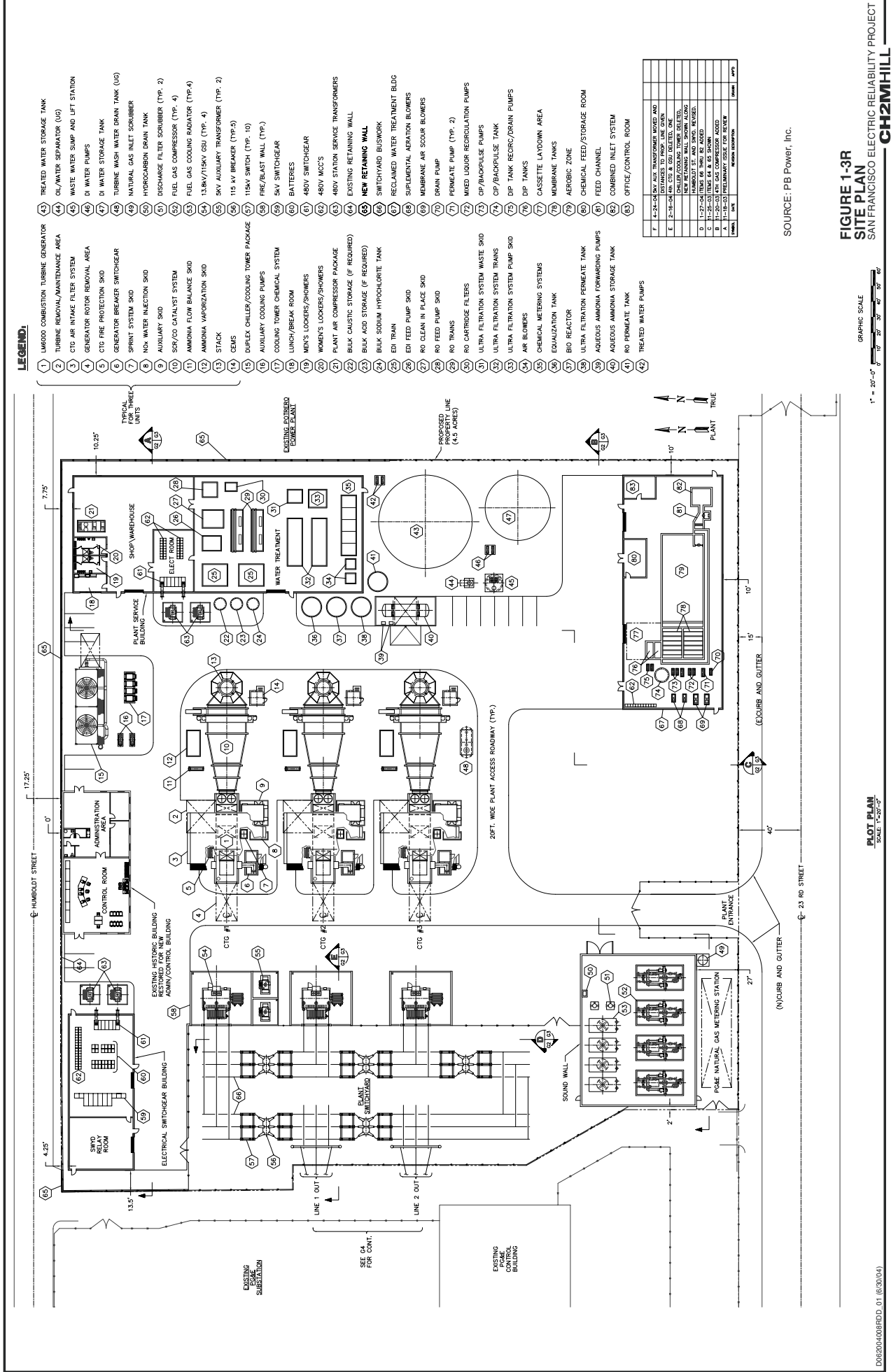
DATA REQUEST

38. Provide the location, layout and numbers of parking spaces to be developed on the site. This information may be included in the revised Figure 1.3 Site Plan, or in a separate, related exhibit.

Response: Refer to AFC Figure 1-4, Site Layout which shows the preliminary location and number of plant parking spaces just to the west of water storage tanks #43 and #47. Also, Revised Figure 1-3R (Data Response #35) shows a closer view of the parking spaces.

39. Delineate the location and dimensions of any loading docks in the revised Figure or the separate exhibit.

Response: At this time, no "loading dock" per se is anticipated.

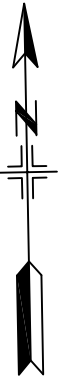


**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT LAND-31

Parcel Map

ASSESSORS BLOCK
4175



LOT 6

Illinois Street

Former Michigan Street

Ordinary High Tide

LOT
7

Former Michigan Street

314.30

148.65

N03°41'19"W

76.76
N87°24'17"E

149.59

N03°10'16"W

172.56

N03°46'18"W

N03°24'18"E

73.17

N03°10'16"W

23rd Street

Point of Beginning

Ordinary High Tide

N86°49'44"E

445.70

New Parcel Line

N86°49'44"E

393.70

Storage Building

Steam Heat Bldg

N86°49'44"E
15.75

Compressor Building

Former Georgia Street

Station A
Building

New Parcel Line

N03°10'16"W

433.72

Easterly Line of Lot 6

EXHIBIT C

SKETCH TO ACCOMPANY LEGAL DESCRIPTION
FOR A PORTION OF THOSE LANDS AS SHOWN
ON THAT RECORD OF SURVEY
RECORDED APRIL 23, 2002, IN BOOK AA OF MAPS, PAGES 13-14
OFFICIAL RECORDS
ALSO BEING A PORTION OF LOT 6, ASSESSORS BLOCK 4175

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Noise

Author: Steve Baker

SFERP Author: Mark Bastasch

BACKGROUND

The project will include four natural gas booster compressors, located near the southwest portion of the project site. While the AFC gives a value for the noise generated by these compressors, and lists mitigation measures to reduce this noise (AFC Table 8.5-11), there is no discussion of the impact of the noise from these machines on the nearest sensitive receptors.

DATA REQUEST

40. Please provide an estimate of the noise impact of the gas booster compressors on the nearest sensitive receptors. If this noise has been included in estimates of plant noise impacts, please so state.

Response: The modeled levels include the gas compressors.

BACKGROUND

The project will include three variable-speed water pumps to supply water to the plant from the City's water pollution control plant. These pumps will be located to the south of the project site, on Marin Street. No estimate of the noise impacts of these pumps on sensitive receptors appears in the AFC.

DATA REQUEST

41. Please provide an estimate of the noise impact of the water supply pumps on the nearest sensitive receptors.

Response: AFC Section 8.5.5.3.3, Process Water Supply Pipeline and Water Pump Station Noise Levels, states that "Operational noise from the buried process water supply pipeline is not anticipated to generate any audible noise. The water pump station will be designed to comply with the City's noise requirements and is not anticipated to increase noise levels in the area by a measurable amount." Thus, no increase in ambient noise level is anticipated from the water supply pumps nor are any impacts from such pumps expected at any sensitive receptors.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Public Health

Author: Alvin Greenberg, Ph.D.

SFERP Author: Gary Rubenstein

BACKGROUND

Section 8.6 **Public Health** characterizes the health risks and hazard from toxic air pollutants. Appendix 8.1C provides the screening health risk assessment in more detail. Section 8.1 assesses air quality impacts of the project and Appendix 8.1A provides emissions and operating criteria. Section 8.1.5 provides emissions from the combustion turbines and the cooling tower. Staff needs additional information in order to adequately assess the impact on public health from these two sources of emissions. Additionally, Section 8.6.5 Mitigation Measures refers to the development of a PM10 mitigation/community benefits package. This PM10 mitigation/community benefits package is discussed in section 4.4. Staff needs additional information regarding this program in order to fully evaluate the claim as stated in Section 8.6.5 that mitigation measures will result in the SFERP providing "net benefits to public health in Southeast San Francisco."

DATA REQUEST

42. Please provide in tabular format the excess lifetime cancer risk and acute and chronic hazard indices at the fenceline, the point of maximum impact, the nearest residence, the nearest sensitive receptor, and the nearest workplace. Please delineate risk and hazard from the two emission sources and the total risk.

Response: The requested information is summarized in Table PH-42.

TABLE PH-42

Excess Lifetime Cancer Risk and Acute and Chronic Hazard Indices

Location	Excess Lifetime Cancer Risk	Acute Hazard Index	Chronic Hazard Index
Property line (fenceline)	0.0002 in one million	0.003	0.0001
Maximally Exposed Individual	0.02 in one million	0.03	0.002
Nearest Residence	0.001 in one million	0.002	0.0001
Nearest Sensitive Receptor	0.001 in one million	0.002	0.0001
Nearest Workplace	0.00003 in one million	0.003	0.000002

The risks and hazards shown above are totals for the three CTGs. As discussed in Section 8.1.5.3.2 of the AFC, the TAC emissions from the cooling tower were compared with the BAAQMD TAC trigger levels and found to be well below the

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

DATA RESPONSES, SET 1A

levels that are considered by the District to be potentially significant (see Table 8.1A-6, Appendix 8.1A). Therefore the cooling tower TACs were not included in the health risk assessment.

Note also that the nearest residential and workplace receptors (which is what was asked for in the Data Request) are not the maximally impacted residential and workplace receptors. Because of the meteorology and topography of the project area, the maximum short-term impacts occur on Potrero Hill, approximately 0.8 miles west of the project site.¹ Therefore, receptors located on Potrero Hill show higher modeled short-term concentrations than receptors located closer to the facility. Similarly, the highest land-based receptors for annual average impacts are also on Potrero Hill.

43. Please clarify if any emergency diesel generators will be used for any purpose on-site (e.g. "black start"; fire water), and if so, please include the emissions and risks/hazards in your response to DR-1 above.

Response: No emergency diesel generators will be used as part of the proposed project for any purpose, including black start or fire water pump purposes. Diesel construction equipment will be used at the site temporarily during project construction; potential health risks from diesel exhaust emissions during construction were addressed in Appendix 8.1D of the AFC.

44. The first two columns of the second table of Table 8.1C-1 list emission rates for Modeling in units of g/sec for 1-hour and annual emissions, per CTG. The third and fourth columns of that table list Modeled Impacts in $\mu\text{g}/\text{m}^3$ for the three CTGs combined. In the Health Risk Assessment conducted by Sierra Research, the values from columns three and four are used as the g/sec emission rate. This appears to be a mistake in units (g/sec or $\mu\text{g}/\text{m}^3$). Please clarify which units were used in the modeling (emission rate in g/sec or concentration in $\mu\text{g}/\text{m}^3$).

Response: The values in columns 3 and 4 of the table referred to above show maximum modeled concentrations, in micrograms per cubic meter, on a 1-hour and annual average basis, respectively. These maximum modeled concentrations were used in the Health Risk Assessment (HRA) model with Π/Q values of $1.0 \mu\text{g}/\text{m}^3$ per g/s so that the modeled concentrations could be used directly in the HRA model. Thus, the values shown in the HRA model output for emission rates in g/s are identical to the values shown in Table 8.1C-1 in $\mu\text{g}/\text{m}^3$. This approach to using the HRA model is discussed in the HRA user's guide at page 30, as follows:

"The HRA program must ultimately calculate a concentration which is used in conjunction with specified health values to determine the potential health impacts at a receptor location. For the HRA program to do this, the user must provide a dilution factor (Π/Q) in $(\mu\text{g}/\text{m}^3)/(\text{g}/\text{s})$ and source emission

¹ The maximum annual impact occurs in San Francisco Bay. The maximum annual impact on land occurs on Potrero Hill.

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

rates in g/s for the source being assessed. The dilution factor is defined as the ratio of the ground level concentration, Π , (at a receptor location) in $\mu\text{g}/\text{m}^3$ to the mass emission rate, Q , in g/s. The HRA program multiplies the pollutant emission rates by the dilution factor yielding the actual concentration of each pollutant at the receptor location. These pollutant concentrations are then used to determine potential health impacts.

“Even though the HRA program is set up to accept dispersion modeling results in the form of a dilution factor (Π/Q) and emission rate data for each individual pollutant, the HRA program can still be used if the user has dispersion modeling results in the form of individual pollutant concentrations by following the steps outlined below:

- Enter pollutant concentration in $\mu\text{g}/\text{m}^3$ where the program asks for emission rate
- Enter 1.0 where the program asks for (μ/Q) ”

45. Please provide UTM coordinates for the following receptors for all emissions scenarios from the CTGs, cooling towers, and diesel construction equipment: fenceline, MEI, nearest residence, nearest sensitive receptor, and nearest workplace.

Response: The requested UTM coordinates are provided in Table PH-45A, with the exception of the fence line receptors, which are listed in Table PH-45B.

TABLE PH-45A
UTM Coordinates

Receptor	UTME (meters)	UTMN (meters)
Maximally exposed individual, acute impacts	553081.19	4178684.75
Maximally exposed individual, chronic and cancer impacts	556631.19	4179809.75
Nearest residence	553831.2	4178809
Nearest sensitive receptor	554523	4178645
Nearest workplace	Note a	Note a

Note a: The project site is surrounded by industrial property so nearest workplace is at the project fence line. See Table PH-45B for UTM coordinates of fence line receptors.

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

TABLE PH-45B
UTM Coordinates for Fence Line Receptors

UTME (meters)	UTMN (meters)
554209.7	4178666.7
554208.3	4178689.3
554195.8	4178708.4
554194.3	4178733.4
554193.0	4178755.7
554188.1	4178755.4
554186.6	4178780.4
554185.4	4178801.0
554210.4	4178802.5
554235.3	4178804.0
554260.3	4178805.5
554285.2	4178807.0
554310.2	4178808.4
554331.2	4178809.7
554332.7	4178784.7
554334.2	4178759.8
554335.6	4178734.8
554337.1	4178709.9
554338.6	4178684.9
554339.2	4178674.4
554314.2	4178672.9
554289.3	4178671.4
554264.3	4178670.0
554254.9	4178669.4
554253.8	4178688.7
554242.5	4178688.0
554243.6	4178668.7
554218.6	4178667.2

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

46. Please provide emission rates for toxic air pollutants from diesel exhaust emissions during the construction phase.

Response: The annual average emission rate of diesel exhaust particulate during the construction phase of the project is 0.35 tons per year (Appendix 8.1D, Attachment 8.1D-1, table titled "SFERC - Construction Modeling," Combustion PM10). This emission rate was converted to units of g/s for modeling using 250 days per year and 10 hours per day for construction activity, so the modeled emission rate was 0.03539 g/s.

47. Please provide a more detailed description of the Particulate Matter (PM) Mitigation and Community Benefits Package including the following:

- a. A detailed description of the monitoring stations located at Whitney Young Circle, Dog Patch, and Potrero Hills in San Francisco.

Response: The documents included as Attachment PH-47 A&B describe the Bayview/Hunters Point Community Air Monitoring Project (BayCAMP) monitoring program that is being undertaken at the Whitney Young Circle location. Monitoring at this location commenced on June 14, 2004, and initial results of the first quarter's monitoring are expected in October 2004. The need for and location of monitoring programs at the Dogpatch and Potrero Hill are still under review, thus; detailed descriptions of these programs are not available. The scope of this additional monitoring will be dependent on the preliminary results of the BayCAMP monitoring.

- b. The rationale for location selection.

Response: The choice of monitoring locations for the BayCAMP program was based primarily on community interest, location with respect to prevailing wind patterns, and its proximity to the 3rd Street corridor, industrial facilities, and freeways. Practical factors including accessibility were also considered in choosing a monitoring location. As discussed above, the need for and extent of monitoring in Dogpatch and Potrero Hill has not yet been determined.

- c. The frequency of sampling, toxic air contributors (TACs) to be sampled (VOCs and semi-volatile compounds), quality assessment/quality control (QA/QC), and methods of reporting to the CEC Compliance Project Manager and the community.

Response: Technical details regarding the BayCAMP monitoring program are provided in the documents that are included as Attachment PH-47 A&B. As the Dogpatch and Potrero Hill monitoring programs are still under review, and are dependent on the preliminary results from the BayCAMP monitoring program, detailed descriptions of these programs are not yet available but will be provided if and when the programs are defined.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT PH-47A

**Bayview Hunters Point Community Air
Monitoring Project**

BayCAMP

Bayview Hunters Point Community Air Monitoring Project – Fact Sheet

What is BayCAMP?

It has long been known that the Bayview Hunters Point community has many serious health problems affecting its residents. There have been many studies that have shown this to be the case. However, there has been almost no information collected about the condition of the environment in this region. Because the Bayview Hunters Point area is known to contain a large number of industrial sites and is located close to major highways and transportation corridors, the air quality in the area may be impacted by pollution that comes from these sources.

BayCAMP is an important first step that will show if air pollution is having a significant impact on the region. BayCAMP is a year-long air monitoring project that will help determine what the air quality is like in Bayview Hunters Point; this will also provide valuable information about the current conditions so that in the future it will be possible to determine if the air quality has improved or worsened over time. The information gathered during BayCAMP will also help us focus our future research to target specific geographic areas or pollution sources.

What Is Air Quality And Why Is It Important?

Air is something that all humans, as well as animals and plants, need to survive. However, the quality of the air—meaning how clean and pure the air is—can vary. **Air Pollution** is caused by substances (pollutants) that mix with air and reduce the air quality, making it impure and sometimes dangerous to breathe. **Air Pollution** can be produced by natural sources such as volcanoes, dust storms, and forest fires. It is also produced by man-made activity including motor vehicles and industrial facilities – even from common household products like aerosol sprays, paints, and solvents. These pollutants can cause serious public health problems, particularly for children and the elderly. Weather and geography also play major roles in air quality. Coastal winds can scatter pollution throughout the Bay Area, but under some conditions the winds may blow pollutants from one community into another, where they can become trapped and accumulated. Sometimes, air quality can vary from one neighborhood to another, which is why it is important to scientifically determine the air quality in Bayview Hunters Point.

There are two types of air quality: outdoor air quality and indoor air quality.

- **Outdoor Air Quality** refers to the air that surrounds us, generally outdoors. It is also known as ambient air quality. Because ambient air quality is often affected by weather—especially wind—it is constantly changing. Ambient air can be affected by large sources of air pollution, such as ongoing emissions from vehicles or constant emissions from a factory smokestack.
- **Indoor Air Quality** refers to the air in a specific indoor location, such as a home or office. Indoor air quality is often affected by items we have or use inside – such as the gases released by synthetic carpets, indoor paints, household cleaners, mold, and household and office products made from plastics and vinyl. Unlike ambient air pollution, which disperses because it is constantly being blown around by the wind, indoor air is usually stagnant and trapped by walls and windows and can often pose a greater risk to health because we spend extended periods of time indoors breathing the same air day in and day out.

Air monitoring can be performed for both ambient air and indoor air. The BayCAMP project will be measuring the ambient air quality in the community.

What Is Air Monitoring?

Air monitoring is a scientific process used to test air to find out if it contains certain pollutants and if so, in what amounts. Air monitoring can be done in many different ways, depending on the kind of information that is needed. The information that is gathered by monitoring air quality can be used to help determine ways to reduce air pollution as well as to provide data that may be used to help evaluate public health and environmental impacts in the community.

How Will The Air Be Monitored?

The air monitoring equipment that will be used for BayCAMP is the latest and most effective equipment available today. This kind of equipment is regularly used by the California Air Resources Board (CARB) and the Bay Area Air Quality Management District (BAAQMD) at their “official” monitoring stations throughout the state. Technicians will also regularly come to take samples collected by the equipment back to the laboratory for analysis. The equipment will be stored in a trailer that will be installed at a selected location. The air monitoring equipment will measure the outdoor/ambient air quality that will represent “regional” air quality in the Bayview Hunters Point community. It will not measure the air quality in individual neighborhoods or measure emissions from specific facilities of concern.

The BayCAMP program will monitor the air for a full 12 month period. This is important because the air quality may change over the course of a year due to changes in weather, changes in activities of local industries, and changes in traffic patterns. By tracking the conditions at the same location for 12 months, the data that will be collected may show trends in air quality that may help to determine if there are specific things that are causing higher levels of pollution—such as increases in truck traffic during certain periods of time—and how they can be better controlled.

Information about the local air quality in the Bayview Hunters Point region taken by the monitoring equipment will be available on a public website. In addition to the data about specific pollutants and the levels at which they are detected by the BayCAMP monitoring equipment, the website will also have information about the legal standards for these pollutants, how certain pollutants are related to public health, and links to other websites with valuable information about air quality and air quality laws and regulations. Bayview residents will also be able to compare the air quality in their community with those of other communities throughout the state that also have air monitoring stations. The website will also be designed so that it can be used as a teaching tool in Bayview classrooms as a way to educate children about science and the environment as it relates to their community.

How Can You Get Involved?

The BayCAMP project is meant to be a resource for the community as well as a way to continue community dialogue with the City of San Francisco about the environmental and health concerns of the residents and business owners. Community input will be crucial to determining the location for the monitoring equipment. In addition, community meetings to discuss the monitoring program and the results of the testing will be held in cooperation with a variety of local organizations throughout the year-long process. A mailing list will be created for anyone interested in receiving regular updates about the program. And finally, the information collected by the monitoring equipment will be available to all the community members so that it can be used in a variety of ways.

To find out more about the Bayview Hunters Point Community Air Monitoring Project and how you can get involved, please contact: Hillary Amsberry from the Department of the Environment @ (415) 355-3705 or Dana Lanza from Literacy for Environmental Justice @ (415) 508-0575.



**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)**

DATA RESPONSES, SET 1A

ATTACHMENT PH-47B

**Bayview/Hunters Point Community Air
Monitoring Project, Monitoring Plan**



**BAYVIEW/HUNTERS POINT COMMUNITY
AIR MONITORING PROJECT
MONITORING PLAN**

Prepared by
Operations Planning and Assessment Section
Quality Management Branch
Monitoring and Laboratory Division

April 21, 2004

The following document has been reviewed and approved by the Air Resources Board (ARB) staff. Approval of this plan does not necessarily reflect the views and policies of the ARB, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

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- II. Response Letter from the ARB to the City of San Francisco
- III. BAAQMD Memorandum of Understanding
- IV. 24-Hour Sample Field Data Forms
- V. Site Initiation/Termination Forms
- VI. Local Wind Rose
- VII. Sampler and Monitor Probe Siting Requirements
- VIII. 2004 Sampling Schedule
- IX. Field Operator Reference Sheet
- X. Ambient Air Quality Standards
- XI. BAAQMD & MLD Staff Contact List

ACRONYMS

<u>ACRONYM</u>	<u>DEFINITION</u>
AQDA	Air Quality Data Action
AQS	USEPA's Air Quality System
AQSB	Air Quality Surveillance Branch, Monitoring and Laboratory Division, Air Resources Board
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BAM	Beta Attenuation Monitor
BayCAMP	Bay Community Air Monitoring Project
BC	Black Carbon
BV/HP	Bayview/Hunters Point
CAAQS	California Ambient Air Quality Standards
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
CO	Carbon Monoxide
Cr(VI)	Hexavalent Chromium
DQO	Data Quality Objective
EC	Elemental Carbon
ILS	Inorganics Laboratory Section, Monitoring and Laboratory Division, Air Resources Board
LEJ	Literacy for Environmental Justice
LIMS	Laboratory Information Management System
MLD	Monitoring and Laboratory Division, Air Resources Board
NIST	National Institute of Standards and Technology
NLB	Northern Laboratory Branch, Monitoring and Laboratory Division, Air Resources Board
NMHC	Non-Methane Hydrocarbon
NO ₂	Nitrogen Dioxide
O ₃	Ozone
OLS	Organics Laboratory Section, Monitoring and Laboratory Division, Air Resources Board
OPAS	Operations Planning & Assessment Section, Monitoring and Laboratory Division, Air Resources Board
PAH	Polyaromatic Hydrocarbon
PAMS	Photochemical Assessment Monitoring Station
PG&E	Pacific Gas and Electric
PM	Particulate Matter
PM _{2.5}	Particulate Matter less than or equal to 2.5 micrometers in diameter
PM ₁₀	Particulate Matter less than or equal to 10 micrometers in diameter
PPB	Parts Per Billion
PPM	Parts Per Million
PPTMC	Parts Per Ten Million Carbon

PSIG	Pounds per Square Inch Gauge
QA	Quality Assessment
QAS	Quality Assurance Section, Monitoring and Laboratory Division, Air Resources Board
QC	Quality Control
QMB	Quality Management Branch, Monitoring and Laboratory Division, Air Resources Board
SFDE	San Francisco Department of the Environment
SLAMS	State and Local Air Monitoring Station
SLPM	Standard Liters per Minute
SO ₂	Sulfur Dioxide
SOP	Standard Operating Procedure
SPMS	Special Purpose Monitoring Section, Monitoring and Laboratory Division, Air Resources Board
TM/E	Total Metals/Elements
ug/m ³	Micrograms Per Cubic Meter
VOC	Volatile Organic Compound


1.0 Monitoring Plan Identification and Approval

Title: Monitoring Plan for Bayview/Hunters Point Community Air Monitoring Project

Prepared by: Yun Pan-Huang, Air Pollution Specialist

Approval: The following monitoring plan is recommended for approval by the California Air Resources Board staff, the Bay Area Air Quality Management District, and the Department of the Environment, City of San Francisco.


Signatures:

 5.6.04

Jeffrey P. Cook, Chief
Quality Management Branch
Air Resources Board

 5/10/04

Kenneth R. Stroud, Chief
Air Quality Surveillance Branch
Air Resources Board

 5/10/04

Michael W. Poore, Chief
Northern Laboratory Branch
Air Resources Board

 5.10.04

William V. Loscutt, Chief
Monitoring and Laboratory Division
Air Resources Board

 5-13-2004

Gary Kendell, Director
Technical Services Division
Bay Area Air Quality Management District

 5/24/04

Ina Shlez,
Senior Environmental Specialist
Department of the Environment
City of San Francisco

2.0 Background

In August 2002, the San Francisco Department of the Environment (SFDE or “the City”) requested assistance from the California Air Resources Board (ARB) to conduct air monitoring in the Bayview/Hunters Point (BV/HP) community of San Francisco (see Attachment I, Letter from the City to ARB). In response, the ARB granted the City use of a fully instrumented mobile air monitoring station to collect air quality information in BV/HP for one year (see Attachment II, Response Letter from ARB to the City).

The monitoring project, which is referred to by the City as the Bay Community Air Monitoring Project, or BayCAMP, will be conducted as a cooperative effort involving the City, the ARB, and the Bay Area Air Quality Management District (BAAQMD). BayCAMP will provide the City, the primary recipients and users of the data, air quality information for understanding the extent to which the BV/HP community may be adversely impacted by air pollution.

The BV/HP community is located in southeast San Francisco and is encompassed by industrial facilities and large distribution centers with associated vehicle traffic (Figures 1 & 2). The Hunters Point power plant, a 430-megawatt capacity power generating facility, and the Hunters Point Naval Shipyard, both located in the eastern edge of the community, are the area’s most notable landmarks. BV/HP is one of largest neighborhoods in San Francisco with a population of approximately 30,000, of which about 32 percent are under the age of 18. BV/HP is known to have one of the highest rates of asthma in the Bay Area.

The monitoring station will be placed east of 3rd Street, adjacent to the Earl P. Mills Community Center. The choice of monitoring locations was based primarily on community interest, location with respect to prevailing wind patterns, and its proximity to the 3rd Street corridor, industrial facilities, and freeways. Practical factors including accessibility were also considered in choosing a monitoring location.

Air monitoring will be conducted for one year to collect data on ambient concentrations of criteria and air toxic pollutants in BV/HP that may be impacting the health of the community’s residents. The BV/HP monitoring design is intended to capture seasonal differences for toxics as well as diurnal variations and peak concentrations for criteria pollutants.

Air samples will be collected on a schedule comparable to the State and Local Air Monitoring Station (SLAMS) criteria pollutant monitoring schedule and, for samples analyzed for air toxics, at twice the frequency of ARB’s routine 12-day toxics sampling schedule. The increased frequency for toxics measurements will improve the representativeness of the calculated average concentrations relative to the actual concentrations present.

Figure 1: Map of Bayview/Hunters Point & Surrounding Area



Figure 2: Aerial Photo of Bayview/Hunters Point



3.0 Roles and Responsibilities

All monitoring will be conducted by the BAAQMD with assistance from the ARB. The ARB's Monitoring and Laboratory Division (MLD) will provide the monitoring station, instrumentation (except aethalometer), support equipment, sampling media, and analytical laboratory services for the project. The BAAQMD will assume daily operation of the station and forward the samples requiring laboratory analysis to MLD. The BAAQMD will be responsible for the aethalometer, including installation, all calibrations, maintenance, and data acquisition. The City's primary operational role will involve monitoring site preparation, including initiating and maintaining electrical power and telephone service for the station. The organizational structure of the project is shown in Figure 3.

3.1 Air Resources Board

Within the ARB, MLD will be primarily responsible for this project. MLD will plan, track, and assist in the design and coordination of all monitoring activities. MLD will set up the air monitoring station, perform initial, six-month, and final instrument calibrations, and perform all laboratory analyses, as described in this plan. MLD will also address quality control (QC) and quality assessment (QA) activities associated with sampling and laboratory analysis for this project.

All MLD management contacts for the project are listed below with an explanation of the primary functions their respective sections will be performing:

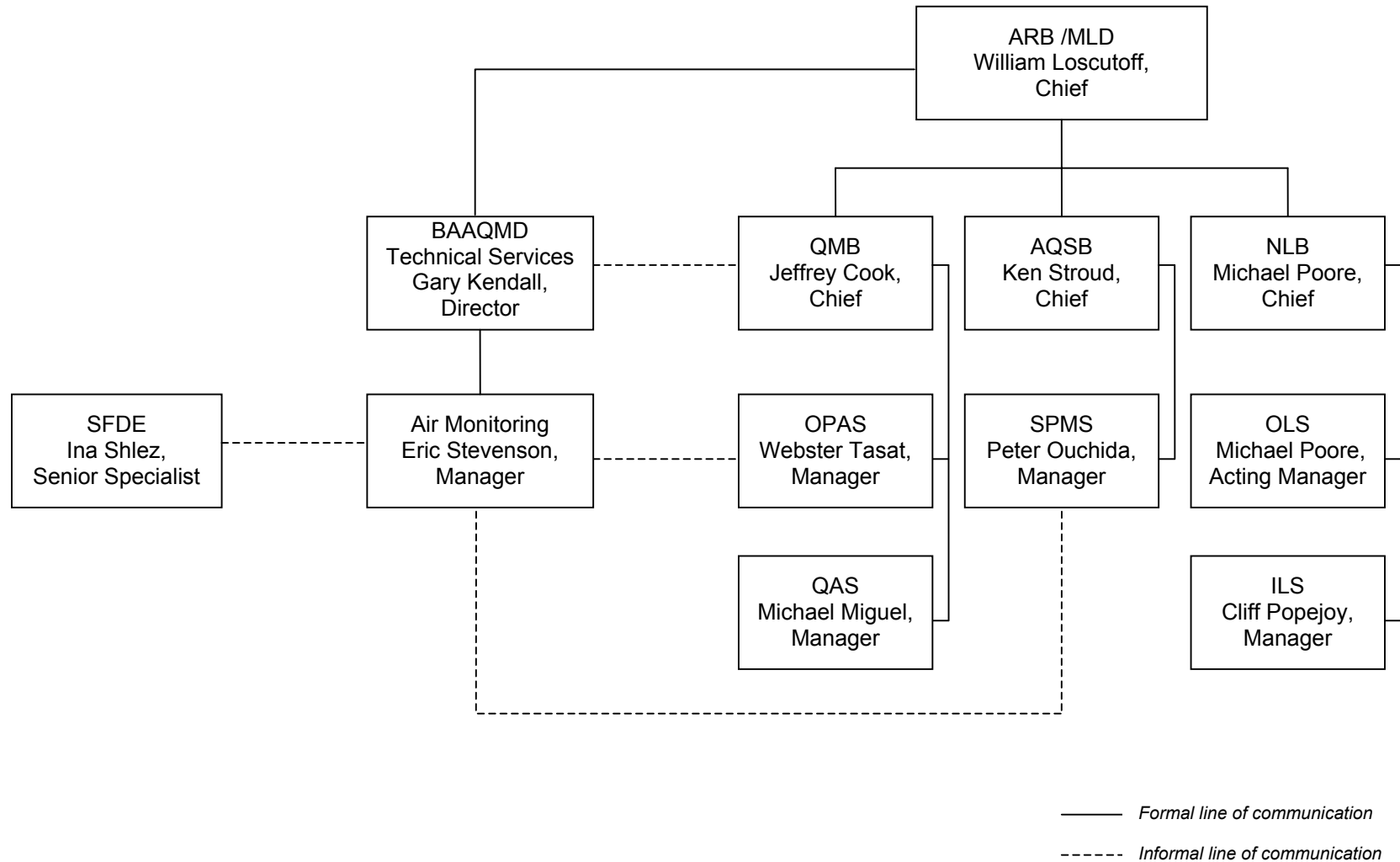
Quality Management Branch

*Jeffrey P. Cook, Chief
Quality Management Branch
Monitoring and Laboratory Division
(916) 322-3726*

*Webster Tasat, Manager
Operations Planning and Assessment Section
Quality Management Branch
(916) 322-7055*

*Michael Miguel, Manager
Quality Assurance Section
Quality Management Branch
(916) 324-6191*

Figure 3: Bayview/Hunters Point Project Organization Chart



The Operations Planning & Assessment Section (OPAS) of the Quality Management Branch (QMB) has overall project management responsibility within the MLD.

OPAS responsibilities for the project include:

- Assisting in site selection;
- Developing data quality objectives and writing the monitoring plan;
- Managing any laboratory contracts used for sample analysis;
- Tracking 24-hour samples (via field data sheets) for sampling date, flow rate, and sampling duration;
- Summarizing data collection information on a quarterly basis, including the number of samples collected compared with data representativeness and completeness criteria;
- Reviewing quarterly laboratory QC reports from OLS, ILS, and QAS;
- Reviewing project schedule and progress monthly and incorporating any changes into a monitoring plan addendum/updated schedule and forwarding revisions to all appropriate parties;
- Reporting to upper management on project status at quarterly intervals (summary memo);
- Coordinating all MLD meetings to review and/or report on the status of the BV/HP project.

OPAS will conduct basic, primary analysis of data from 24-hour samples (PM10, toxic gases, and total metals/elements, etc.), i.e., summary statistics including maximum, minimum, and mean values. OPAS staff will compare BV/HP data to available coincident data collected at the Arkansas Street station. More comprehensive data analysis is expected to be completed by non-ARB parties at a later date.

The Quality Assurance Section (QAS) will have the following responsibilities with respect to the project:

- Conducting standard performance audits of all station samplers, analyzers and meteorological sensors (see Section 6.0, Table 2) approximately 60 days after start-up and initial calibration (station close-down audit will be conducted by the BAAQMD);
- Providing the BAAQMD personnel with preliminary audit report on the day of the audit or as soon as possible thereafter;
- Providing preliminary audit report detailing the results of the complete audit with a formal cover memo to OPAS and Special Purpose Monitoring Section (SPMS) within approximately 10 working days after the audit;
- Notifying BAAQMD, SPMS, and OPAS immediately (within two (2) working days following the audit) if any audit fails;

- Forwarding a copy of any Air Quality Data Action (AQDA) that may be issued to the BAAQMD, OPAS, and SPMS;
- Sending a copy of routine MLD (OLS & ILS) laboratory audit results for year 2004 to OPAS.

Air Quality Surveillance Branch

*Kenneth R. Stroud, Chief
Air Quality Surveillance Branch
Monitoring and Laboratory Division
(916) 445-3745*

*Peter Ouchida, Manager
Special Purpose Monitoring Section
Air Quality Surveillance Branch
(916) 322-3719*

The Air Quality Surveillance Branch (AQSB) will establish the monitoring station and provide support to BAAQMD in maintaining the operation of the station for the duration of the project. The Memorandum of Understanding (see Attachment III) details the roles and responsibilities of ARB and BAAQMD. Within the AQSB, SPMS will have responsibility for installation, initial start-up, and close down activities, which include:

- Installing and removing mobile air monitoring station;
- Calibrating all samplers and analyzers (except aethalometer) according to existing Standard Operating Procedures (SOP);
- Completing and reviewing sampler calibration documentation;
- Forwarding copies of sampler and analyzer calibration documentation to OPAS and BAAQMD within 10 working days of completion;
- Providing maintenance support for samplers and analyzers as well as station support equipment (e.g., lighting system, A/C, etc.);
- Providing replacement samplers or analyzers, if necessary.

Northern Laboratory Branch

*Michael W. Poore, Chief
Northern Laboratory Branch
Monitoring and Laboratory Division
(916) 322-6043*

*Michael W. Poore, Acting Manager
Organics Laboratory Section
Northern Laboratory Branch
(916) 322-6043*

*Cliff Popejoy, Manager
Inorganics Laboratory Section
Northern Laboratory Branch
(916) 322-6202*

The Northern Laboratory Branch (NLB) will analyze 24-hour samples and will be responsible for all laboratory activities associated with the project. Their responsibilities include:

- Preparing and supplying filter media and canisters for PM10 and air toxic program with associated field data forms (see Attachment IV) and return envelopes;
- Forwarding all sampling media for PM10 and air toxic program to the BAAQMD as needed for sampling (shipping costs of samples to and from the site will be borne by ARB);
- Validating 24-hour samples and entering field sampling information in MLD's Laboratory Information Management System (LIMS);
- Informing BAAQMD field operator (See Attachment XI, *BAAQMD & MLD Staff Contact List*) immediately if a sample is invalidated by the laboratory staff;
- Informing OPAS staff if a sample is invalid;
- Analyzing 24-hour samples and uploading analytical data to LIMS using standard reporting units;
- Performing quarterly data review for sample results;
- Posting laboratory results to USEPA's Air Quality System (AQS) within 90 days of the end of each quarter;
- Providing laboratory QC information, i.e., quarterly QC reports and current laboratory SOPs for each compound or parameter, to OPAS staff as appropriate or upon request;
- Providing a spreadsheet of the analytical results to OPAS staff within 90 days of the end of each quarter;
- Providing copies of field data sheets to OPAS staff, for use in tracking and summarizing sample collection information.

3.2 Bay Area Air Quality Management District

*Gary Kendall, Director
Technical Services Division
Bay Area Air Quality Management District
(415) 749-4932*

*Eric Stevenson, Manager
Air Monitoring Section
Bay Area Air Quality Management District
(415) 749-4695*

BAAQMD will collect all samples and operate all monitoring instruments for this project. Responsibilities of BAAQMD will consist of the following:

- Assisting in selecting monitoring location;
- Working with MLD to ensure that major siting criteria are met as closely as possible per 40CFR, Part 58;
- Completing site forms (see Attachment V for ARB examples) necessary for establishing AQS account at the beginning of the monitoring;
- Completing site termination form;
- Operating all samplers and analyzers;
- Installing, calibrating, and maintaining the aethalometer, when the instrument becomes available;
- Investigating and resolving any ARB AQDA notices that may be issued, in conjunction with QAS;
- Reviewing suspect data (in the event of an AQDA) and applying corrections, if applicable (i.e., data rescue);
- Coordinating with MLD for sample/media transfers between field and laboratory and shipping samples to ARB after each sampling period;
- Completing all analyzer QC checks as appropriate (zero, span, flow, leak, etc.) and monthly QC information sheets (using BAAQMD or ARB forms);
- Completing all 24-hour sample records forwarded from the laboratory;
- Responding to invalid samples by scheduling make-up samples in the appropriate time frame;
- Polling continuous analyzer data electronically;
- Reviewing and validating continuous data and submitting data to AQS;
- Conducting standard performance audit of all station samplers and analyzers (see Table 2) within 60 working days of the station shut-down (station start-up audit will be conducted by MLD);
- Sending a copy of close-down audit results, or preliminary audit results, to MLD within approximately 10 working days after the audit;
- Notifying MLD immediately (within two (2) working days following the audit) if any audit fails.

Any analysis of continuous analyzer data, including comparisons with routine site data and California Ambient Air Quality Standards (CAAQS), will be conducted by the BAAQMD, as appropriate.

3.3 San Francisco Department of the Environment

*Ina Shlez, Senior Environmental Specialist
Department of the Environment
City of San Francisco
(415) 355-3731*

*Hillary Amsberry, Environmental Justice Coordinator
Department of the Environment
City of San Francisco
(415) 355-3705*

The City will be responsible for all community outreach and communication between the project agencies and BV/HP community, including community organizations, such as Literacy for Environmental Justice (LEJ). The City staff, with assistance from BAAQMD and MLD, will act as lead for the site selection and site preparation activities. The City will also coordinate and implement all post-monitoring restoration activities. City activities will include:

- Arranging for installation of the station's power supply, with assistance from the San Francisco Department of Public Works and any other organizations;
- Installing and maintaining a dedicated telephone line, with the assistance of appropriate City department(s) and any other organizations, to allow for continuous data to be accessed electronically from the station;
- Installing and maintaining a security fence surrounding the station, with the assistance of appropriate City department(s);
- Arranging with property owners to secure right-of-access BAAQMD and ARB personnel to the site location;
- Coordinating with appropriate City department(s) and any other organizations for the removal of power, telephone line, and fencing at the conclusion of monitoring;
- Restoring the site to its pre-monitoring condition at the end of the project, if necessary;
- Distributing data and project summary information to the public, as appropriate.

4.0 Project Schedule

A tentative project schedule, which includes analyzer and sampler setup and removal, sample/continuous data collection, performance audits, data review, and reporting schedules, is shown in Table 1. Schedule details and key dates for the project are outlined below:

- The intended duration of the project is one (1) year and must include all four (4) seasons. *Black carbon data collected by the aethalometer may not be available for a complete year;*
- The completion of site preparation activities is expected in May 2004;
- Installation of the mobile air monitoring station is expected in May 2004;
- Sampling and monitoring is expected to begin in June 2004, with the possible exception of the aethalometer unit. *The aethalometer will be set-up as soon*

Table 1: Bayview/Hunters Point – Tentative Schedule

Task	Frequency	Dec/2003 - Apr/2004	May 2004	Jun 2004	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Oct 2005
Field Activities																	
Site Preparation	NA	X	X														
Station Setup	NA		X														
Sampler Calibration	Biannual		X						X						X		
Station Removal	NA															X	
Sample/Data Collection																	
CO/Dasibi 3008	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
NO2/TECO 42	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
NMHC/TECO 55	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
O3/API 400	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
SO2/API 100A	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
PM2.5/BAM 1020	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
BC/Aethalometer	Continuous		X	X	X	X	X	X	X	X	X	X	X	X	X		
PM10/Hi-Vol/SSI	1 in 6 days		X	X	X	X	X	X	X	X	X	X	X	X	X		
Toxics/XonTech 910	1 in 6 days		X	X	X	X	X	X	X	X	X	X	X	X	X		
Toxics/XonTech 924	1 in 6 days		X	X	X	X	X	X	X	X	X	X	X	X	X		
Site Audits	Biannual					X								X			
Data Uploading to AQS	Quarterly						X			X			X			X	X
Forms/Reports																	
Monitoring Plan	NA		X														
Site Initiation Forms	NA			X													
Audit Reports	NA					X								X			
Interim Status Report	Quarterly					X			X			X			X		
Monitoring Report	NA																X

as possible at the site after completion of the unit's upgrade and appropriate calibration;

- The second quarter of 2004 data will be available in AQS by approximately the end of September 2004;
- All samplers/analyzers will be calibrated prior to the start of collection of data-for-record and every six (6) months thereafter through the end of the project; Two site audits will be conducted for this project: one will be conducted within 60 working days after sampler/analyzer start-up and initial calibration, and the close-down audit within 60 days prior to the end of sampling/monitoring;
- Mobile monitoring station will be removed from the monitoring location by MLD staff within 30 working days after the completion of all sampling/monitoring.

This project schedule is generated based on the project requirements and data quality objectives (DQOs) and will be reviewed quarterly, or as necessary, by OPAS staff. As the project progresses, the schedule may be modified in order to meet the project DQOs or in response to changes in the number of parameters measured, operational status of available equipment, changes to the monitoring site, etc. An updated schedule, and addendum to this monitoring plan, if necessary, will be forwarded to all BV/HP project participants.

5.0 Site Description

The monitoring site will be adjacent to the Earl P. Mills Community Center, located at 100 Whitney Young Circle, and is located near the Gloria R. Davis Middle School and to residences in Hunters Point. The topography of the area is hilly with the monitoring site located on the eastern edge of a hill overlooking India Basin to the east (see Figure 1). The monitoring site is approximately one-half mile downwind of the 3rd Street corridor, a significant source of vehicle emissions in BV/HP. To the northeast of the Mills Community Center is the Pacific Gas and Electric (PG&E) power plant. Hunters Point Naval Shipyard is located to the southeast. The prevailing wind in the BV/HP area is from the northwest. A wind rose illustrating typical wind directions and speeds in the area is contained in Attachment VI.

The neighborhood spatial scale will be used to determine placement of the samplers and monitoring probes with respect to height above the ground, distance from trees, buildings, and walls, unobstructed airflow, and the like. To the extent possible, all samplers and monitor probes will be positioned with reference to neighborhood scale siting criteria in 40CFR Part 58, Appendix E, and Volume II, Section 2.0.4, of ARB's Quality Assurance Manual. The sampler and monitor probes siting requirements are included in Attachment VII.

Additional information on the monitoring site for this project is included in Section 7.1.

6.0 Monitoring and Sampling Parameters¹

A summary of measured pollutants, measurement frequencies and methods, example field SOPs, and a list of samplers/analyzers are contained in Table 2.

Table 2: Summary of Pollutants, Measurement Frequency, Measurement Methods, Example Field SOPs, and Samplers/Analyzers

Pollutant/ Measurement ¹	Measurement Frequency	Measurement Method	Example Field SOP Reference ²	Analyzer/ Sampler
CO	Continuous	NDIR ³	Vol. II Appendix S	Dasibi 3008
NO ₂	Continuous	Chemiluminescence	Vol. II Appendix W	TECO 42
NMHC	Continuous	GC/FID ⁴	Vol. II Appendix AK	TECO 55
O ₃	Continuous	UV Photometry	Vol. II Appendix X	API 400
SO ₂	Continuous	UV Fluorescence	Vol. II Appendix C	API 100A
PM _{2.5}	Continuous	Beta Attenuation	BAM-1020 SOP400	BAM 1020 (2.5 inlet)
Black Carbon	Continuous	Optical Attenuation	(under development)	Aethalometer
Meteorological Parameters	Continuous WS, WD, RH, OT, BP ⁵	(Various sensors, transducers, etc.)	Vol. II Appendices T, U, V, AA, AL	Met One
PM ₁₀ (mass)	1 in 6 days	Gravimetric	Vol. II, Appendix P	Andersen Hi-Vol/SSI
PM ₁₀ EC ⁶	1 in 6 days	Thermal-optical	Vol. II, Appendix P	Andersen Hi-Vol/SSI
PM ₁₀ PAHs	1 in 6 days	HPLC ⁷	Vol. II, Appendix P	Andersen Hi-Vol/SSI
PM ₁₀ Ions	1 in 6 days	Ion Chromatography	Vol. II, Appendix P	Andersen Hi-Vol/SSI
Toxic VOCs	1 in 6 days	GC/MS ⁸	Vol. II, Appendix Q	XonTech 910
Carbonyls	1 in 6 days	HPLC	Vol. II, Appendix R	XonTech 924
Chromium VI	1 in 6 days	Ion Chromatography	Vol. II, Appendix R	XonTech 924
TM/E	1 in 6 days	X-Ray Fluorescence	Vol. II, Appendix R	XonTech 924

¹Specific PAHs, ions, toxic VOCs, carbonyls, and total metals/elements are listed in Table 4.

²ARB's field SOP's given for reference; applicable BAAQMD SOPs may be used instead.

³Nondispersive Infrared Photometry.

⁴Gas Chromatography/Flame Ionization Detector.

⁵Wind Speed, Wind Direction, Relative Humidity, Outside (Ambient) Temperature, Barometric Pressure

⁶For selected PM₁₀ samples only.

⁷High Performance Liquid Chromatography.

⁸Gas Chromatography/Mass Spectrometry.

6.1 Pollutants Measured by Continuous Analyzers

Pollutants measured by continuous analyzers will consist of:

- Carbon monoxide (CO) in parts per million (ppm);
- Nitrogen dioxide (NO₂) in ppm;
- Ozone (O₃) in ppm;
- Sulfur dioxide (SO₂) in ppm;

¹ For purposes of this plan, monitoring refers to the use of direct-read, continuously operated instruments. The term monitoring can also be used generically, i.e. monitoring plan or monitoring report, etc. Sampling refers to the collection of ambient air in a canister, or through a filter or cartridge, over a given time period and involves off-site laboratory analysis.

- Total non-methane hydrocarbons (NMHC) in parts per ten million carbon (pptmC);
- BAM PM2.5 in micrograms per cubic meter of sampled air (ug/m3);
- Black carbon (BC) in ug/m3.

Meteorological data will also be collected on a continuous basis and will consist of:

- Wind speed in knots;
 - Wind direction in degrees;
 - Relative humidity in percent;
 - Outside temperature in degrees Celsius; and,
 - Barometric pressure in millimeters of mercury (mmHg).
- Hourly average concentrations of each pollutant and meteorological parameter will be obtained for the duration of the monitoring. All hourly average measurements will be uploaded to AQS.

6.2 Pollutants Collected by 24-Hour Samplers

Twenty-four hour integrated samples of PM10, toxic volatile organic compounds (VOCs), carbonyl compounds, total suspended particulate-bound hexavalent chromium (Cr(VI)), and total metals and elements (TM/E) will be collected every sixth day.

The six-day sampling schedule will be coincident with PM10 samples collected from the routine SLAMS sites throughout the State. Air samples analyzed for toxics will be collected at twice the frequency as regular toxic sites (i.e., every six days rather than every twelve days). The purpose of coincident sampling is to enable a comparison between the data collected for this project and data collected at routine air monitoring sites. The sampling schedule for year 2004 is included in Attachment VIII.

7.0 Field Activities

7.1 Site Reference Information & Documentation Requirements

The following site information is provided for reference:

Official Site Name: *Bayview Hunters Point*

Physical Location: *Earl P. Mills Community Center (adjacent lot)*

Address: *100 Whitney Young Circle, San Francisco, CA 94124*

Latitude/Longitude: N. 37° 44.012' / W. 122° 23.002'

AQS (AIRS) Site Code: *TBD*

All field activities, including sample collections, sampler calibrations, QC and maintenance documentation, and site audits will be documented using ARB's or BAAQMD's forms. The required documentation and

responsible agency for the associated field activities are summarized in Table 3.

Table 3: Documentation & Responsible Agency

Activity	Documentation Required	Responsible Agency
Station Installation	Site Initiation Information	ARB / BAAQMD ¹
Instrument Calibrations	Calibration Sheets	ARB
QC/Maintenance	Field Check Sheets	BAAQMD
24-hour Sample Collection	Field Data Forms	BAAQMD
Site Audit	Audit Forms	ARB & BAAQMD ²
Site Close Down	Site Termination Forms	BAAQMD ³
Start-up info, daily O&M, cals, unusual activity near site	Station Log	ARB / BAAQMD

¹ARB personnel will physically set up the station; BAAQMD will provide information necessary for establishing AQS account

²ARB—Start-up audit; BAAQMD—Close-down audit

³BAAQMD will fill out the site termination forms; ARB personnel will physically remove the station

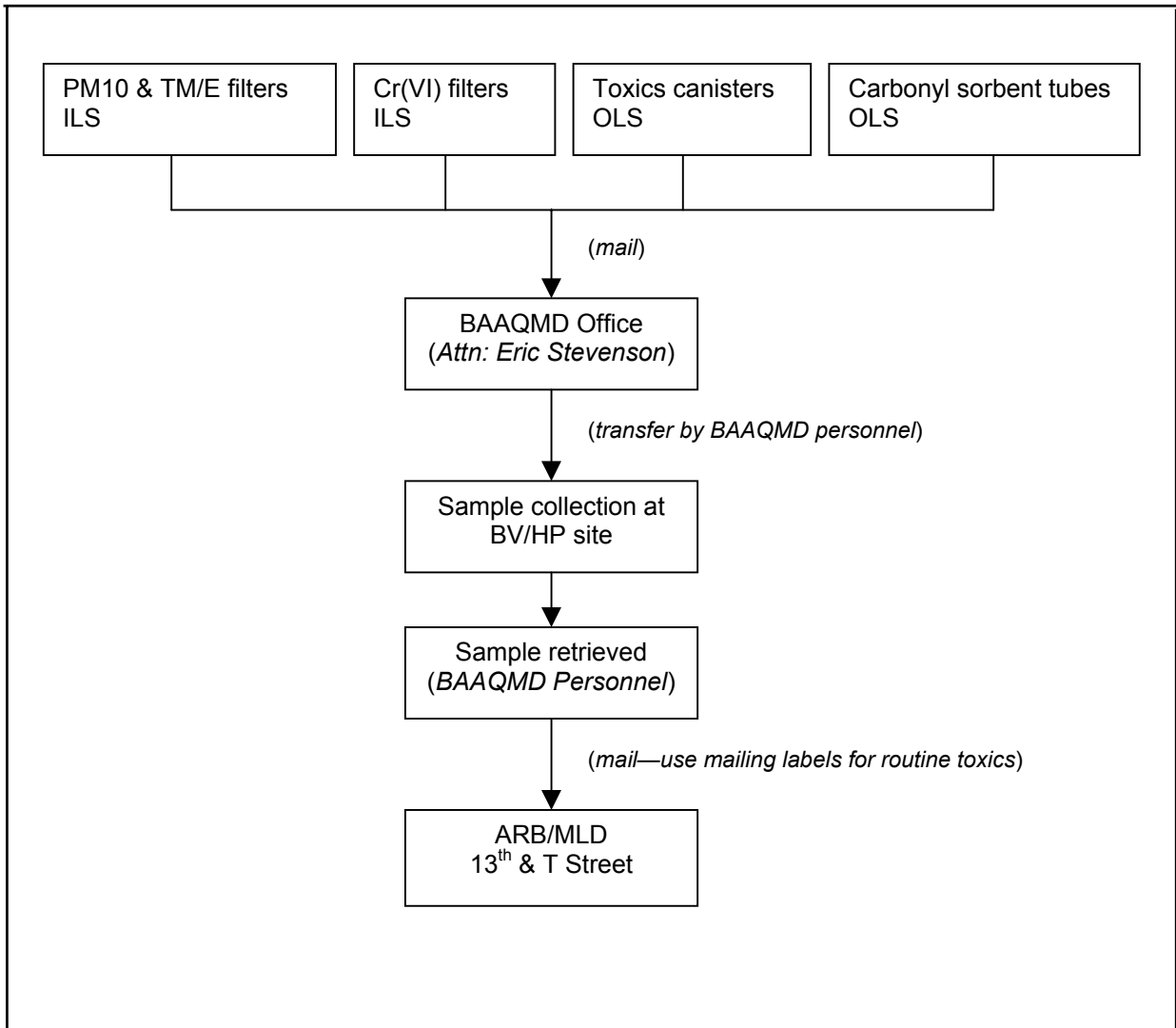
All forms or check sheets must be completely filled out by the operator and reviewed by the supervisor or senior staff. The following procedure should be followed for all documentation:

- Sample record forms should be maintained through the life of the project for review;
- Entries must be made using waterproof ink pens, preferably in blue or black ink;
- Errors should be crossed out with a single line, then initialed and dated;
- Correction should be written next to the deletion;
- All documentation should be signed or initialed.

7.2 Media/Sample Transfer

The NLB staff will prepare all sample media (filters, sorbent tubes, and canisters) following the standard procedures. The sample/media delivering procedure is shown in Figure 4. Inorganics Laboratory Section (ILS) staff will pre-weigh PM10 filters and prepare 37-mm cellulose filters for Cr(VI) collection and 37-mm Teflon filters for TM/E collection. Organics Laboratory Section (OLS) staff will prepare canisters for VOC and sorption tubes for carbonyls. The media, along with the associated field data sheets (see Attachment IV) and pre-addressed and stamped return envelopes, will be mailed to BAAQMD quarterly, except canisters. Four canisters will be sent to the BAAQMD prior to sampling and one canister will be sent out each time a VOC sample is received by the MLD laboratory.

Figure 4: Sample/Media Transfer Process



After each sampling period, samples will be returned to the laboratory for analyses. *If a scheduled sampling date is missed, a field data sheet, filled out with scheduled run date and site name, must be sent to the laboratory with the reason why the sample was missed.*

The mailing addresses of ARB and BAAQMD are given below for purposes of forwarding sampling media and returning samples for analysis.

Returning toxics samples (910A & 920) to:
California Air Resources Board
Monitoring & Laboratory Division
1927 13th Street
Sacramento, CA 95814

Returning PM10 samples to:
California Air Resources Board
Monitoring & Laboratory Division
P. O. Box 2815
Sacramento, CA 95812

Forwarding sampling media to:
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attn: Eric Stevenson

7.3 Monitoring and Sampling Procedures

A summary of pollutants, measurement frequency, ARB's field SOPs, and types of samplers and analyzers is listed in Table 2. Sample collection, sampler/analyzer calibration, and sampler/analyzer maintenance will be conducted following applicable ARB's or BAAQMD's SOPs. Any deviations from current field SOPs used for the project must be clearly documented.

7.4 Corrective Actions

When necessary, corrective actions must be taken to ensure that the type and quality of data expected from the monitoring are achieved. Section I of Attachment IX summarizes the most common monitoring and sampling problems likely to be encountered by field operators requiring corrective action and indicates the corrective action or actions needed.

In cases where a 24-hour sample is invalidated, or if a scheduled sample is missed, a make-up sample should be collected on the earliest possible date. The make-up date should be within the same month as the

scheduled date to obtain sufficient representative data (i.e., four or more samples) per calendar month.

8.0 Laboratory Analysis

Twenty-four hour samples will be analyzed following NLB's laboratory SOPs. Laboratory SOPs and reporting limits for each analyte are listed in Table 4. Details on each procedure may be found at:

<http://www.arb.ca.gov/aaqm/sop/summary/summary.htm>.

Upon receipt, the laboratory staff will inspect samples. The laboratory staff must immediately notify field operator if a sample is invalidated (See Attachment XI, BAAQMD & MLD Staff Contact List). Table 5 summarizes the criteria for establishing valid 24-hour samples.

The sampling information, such as site name, sampling date, start/stop time, flow rates or canister pressures, will be logged into LIMS. All samples will be analyzed individually except Cr(VI). A composite sample, which consists of five (5) to seven (7) valid Cr(VI) filters for each quarter, will be analyzed to obtain a quarterly average concentration of Cr(VI).

After samples are analyzed, the analytical data, which include analysis date and results, etc., will be uploaded to LIMS. LIMS will then calculate the concentration of each analyte in the sampled air using the analytical results and sampling information (run time and flow rate, etc.). The final ambient data will be submitted to AQS. If the ambient concentration is below the reporting limit, the result will be reported as less than the reporting limit (e.g., < 0.1 ppb).

The following modifications will be made to the current laboratory procedures in order to meet the project DQOs, or due to technical or budget issues:

- Elemental carbon will be analyzed from the PM₁₀ filter with the highest mass measurement for each month (i.e., one sample per month).
- For Cr (VI) analysis, five (5) to seven (7) samples will be selected each quarter with the same scheduled sampling dates as those collected at Arkansas Street station, and composited. The remaining samples will be archived. If there are less than five samples that have same scheduled dates with the Arkansas Street station, the additional samples needed to make the composite will be selected from the remaining samples collected in the same quarter.
- The TM/E analytes with the reporting limits listed in Table 4 are subject to change depending on the availability of analytical instrumentation.

Table 4: Analytes, Reporting Limits, and Laboratory SOPs

Analyte	Reporting Limit	Lab SOP	Analyte	Reporting Limit	Lab SOP
PM10 Mass	2.0 ug/m3	MLD016	Acrylonitrile	0.3 ppbv	MLD066
PM10 Elemental Carbon	1.0 ug C/m3	MLD065	Carbonyls		
PM10 Ions			Acetaldehyde	0.1 ppbv	MLD022
Sulfate	0.1 ug/m3	MLD007	Formaldehyde	0.1 ppbv	MLD022
Nitrate	0.1 ug/m3	MLD007	Methyl ethyl ketone	0.1 ppbv	MLD022
Chloride	0.03 ug/m3	MLD007	Metals/Elements¹		
Ammonium	0.1 ug/m3	MLD023	Aluminum	4.0 ng/m3	MLD034
Potassium	0.03 ug/m3	MLD023	Antimony	6.0 ng/m3	MLD034
PAHs			Arsenic	2.0 ng/m3	MLD034
Benzo(a)pyrene	0.05 ng/m3	MLD028	Barium	19 ng/m3	MLD034
Benzo(b)fluoranthene	0.05 ng/m3	MLD028	Bromine	1.0 ng/m3	MLD034
Benzo(g,h,i)perylene	0.05 ng/m3	MLD028	Calcium	4.0 ng/m3	MLD034
Benzo(k)fluoranthene	0.05 ng/m3	MLD028	Chlorine	10 ng/m3	MLD034
Dibenzo(a,h)anthracene	0.05 ng/m3	MLD028	Chromium	2.0 ng/m3	MLD034
Indeno(1,2,3-cd)pyrene	0.05 ng/m3	MLD028	Cobalt	15 ng/m3	MLD034
VOCs			Copper	1.0 ng/m3	MLD034
1,1,1-Trichloroethane	0.01 ppbv	MLD058	Iron	1.0 ng/m3	MLD034
1,3-Butadiene	0.04 ppbv	MLD058	Lead	3.0 ng/m3	MLD034
Benzene	0.05 ppbv	MLD058	Manganese	1.0 ng/m3	MLD034
Bromomethane	0.03 ppbv	MLD058	Mercury	3.0 ng/m3	MLD034
Carbon tetrachloride	0.02 ppbv	MLD058	Molybdenum	2.0 ng/m3	MLD034
Chloroform	0.02 ppbv	MLD058	Nickel	1.0 ng/m3	MLD034
cis-1,3-Dichloropropene	0.1 ppbv	MLD058	Phosphorus	2.0 ng/m3	MLD034
Dichloromethane	0.1 ppbv	MLD058	Potassium	5.0 ng/m3	MLD034
Ethylbenzene	0.2 ppbv	MLD058	Rubidium	1.0 ng/m3	MLD034
m/p-Xylene	0.2 ppbv	MLD058	Selenium	2.0 ng/m3	MLD034
o-Dichlorobenzene	0.3 ppbv	MLD058	Silicon	2.0 ng/m3	MLD034
o-Xylene	0.1 ppbv	MLD058	Strontium	1.0 ng/m3	MLD034
p-Dichlorobenzene	0.3 ppbv	MLD058	Sulfur	2.0 ng/m3	MLD034
Perchloroethylene	0.01 ppbv	MLD058	Tin	5.0 ng/m3	MLD034
Styrene	0.1 ppbv	MLD058	Titanium	3.0 ng/m3	MLD034
Toluene	0.2 ppbv	MLD058	Uranium	3.0 ng/m3	MLD034
trans-1,3-Dichloropropene	0.1 ppbv	MLD058	Vanadium	2.0 ng/m3	MLD034
Trichloroethylene	0.02 ppbv	MLD058	Yttrium	2.0 ng/m3	MLD034
Carbon disulfide	0.1 ppbv	MLD058	Zinc	1.0 ng/m3	MLD034
Acrolein	0.3 ppbv	MLD066	Zirconium	2.0 ng/m3	MLD034
Acetone	0.3 ppbv	MLD066			
Acetonitrile	0.3 ppbv	MLD066	Cr(VI) ²	0.06 ng/m3	MLD039

¹Specific metals and elements analyzed for this project may change based on availability of instrumentation.

²Quarterly average concentration from composite samples will be reported.

Table 5: Criteria for Valid 24-hour Samples

Pollutant	Sampler/Media	Flow Rate or Canister Pressure	Run Time	Start/Stop Time
PM10	Hi-Vol/SSI 8"x10" Quartz Filter	40 \pm 10% (CFM)	24 \pm 1 Hour	00:00-24:00 (\pm 30 min)
VOCs	XonTech 910A 6-Liter Canister	10.0-16.0 (PSIG)	24 \pm 1 Hour	00:00-24:00 (\pm 1 hour)
TM/E	XonTech 924 37-mm Teflon Filter	1. 9-14 (SLPM) 2. PD ¹ \leq 10%	24 \pm 1 Hour	00:00-24:00 (\pm 1 hour)
Cr(VI)	XonTech 924 37-mm Cellulose Filter	1. 9-14 (SLPM) 2. PD ¹ \leq 10%	24 \pm 1 Hour	00:00-24:00 (\pm 1 hour)
Carbonyl compounds	XonTech 924 Sorbent Tube	1. 0.63-0.77 (SLPM) 2. PD ¹ \leq 10%	24 \pm 1 Hour	00:00-24:00 (\pm 1 hour)

¹Percent difference (PD) between start and stop flow rate, start and average flow rate, and stop and average flow rate.

9.0 Data Quality Objectives

The primary purpose of data quality objectives (DQOs) in ambient air sampling work is to produce air quality data that is of sufficient quantity and quality to meet the needs of the end user. DQOs for the BV/HP project are based on collecting data necessary to adequately characterize the ambient concentrations of monitored air pollutants in the BV/HP area. DQOs for this project consist of specific criteria for the following data measurements: accuracy, precision, representativeness, completeness, and comparability.

9.1 Accuracy and Precision

Accuracy is a measure of how close an individual measurement is to the actual or true value. Accuracy for samplers and analyzers used at the BV/HP will be assessed through performance audits of one portion of the measurement process.

For filter and cartridge samplers, and the BAM 2.5 instrument, the flow rate will be audited. Flow rate has a direct bearing on the total air volume collected and will therefore affect the calculated concentration of the pollutant. The flow rate of the PM10 and XonTech 924 samplers shall be within \pm 10 percent of the true value.

For gaseous criteria and non-criteria analyzers, the analyzer's measurement output is challenged with a known concentration of gas. The measured values for continuous analyzers shall be within \pm 15 percent of "true" value as determined by a certified transfer standard or NIST-traceable audit gas with the exception of the Beta Attenuation Monitor (BAM) for continuous analysis of PM2.5. For the BAM2.5, the audit control limit for flow is \pm 4 percent of the true flow as determined with a certified flow measurement device.

The accuracy of meteorological sensor readings consisting of ambient air temperature, barometric pressure, relative humidity, wind speed, and wind direction will be assessed by comparison with certified sensors using Photochemical Assessment Monitoring Station (PAMS) criteria.

Details on performance audit procedures, including calculations used in determining percent differences may be found at:

<http://www.arb.ca.gov/aaqm/qmosqual/qamannual/vol5/vol5.htm>

Precision checks using gases of known concentration will be conducted each day, five (5) days per week, of station operation for assessing the precision of continuous analyzers. Precision check data must be within ± 15 percent of the true value. In the State and Local Air Monitoring Station (SLAMS) network, precision for manual methods is routinely evaluated using collocated samplers. Currently, there are no plans to collocate samplers at the BV/HP station. However, maintenance and operation of manual methods at BV/HP will match those throughout the SLAMS network for PM₁₀ and toxic samplers (XonTech 924 & 910) and precision measurements made at routine SLAMS and toxic sites is expected to reflect the precision of samplers at BV/HP.

Analytical accuracy and precision will be evaluated through the use of routine laboratory blanks, spikes, and duplicate samples. Detailed information on laboratory accuracy and precision, including spikes and duplicate sample control limits, are described in MLD's Laboratory QC Manual, method SOPs, and quarterly QC reports generated by each laboratory. These QC reports are independently reviewed to ensure that the data produced meet quality standards. In addition to laboratory QC, a laboratory performance audit of the inorganics and organics laboratories, which will occur once during the project, will be used to independently assess the quality of the data produced by these laboratories.

9.2 Representativeness

Representativeness refers to how accurately the sampling design represents the ambient concentrations of pollutants in the BV/HP community. Representativeness involves spatial and temporal aspects and is used to define a distance over which pollutant concentrations are expected to be essentially uniform. Samplers and analyzers are capable of collecting only a relatively small volume of air at any given time. However, the volume of air sampled can represent concentrations prevailing over a much larger area if the geography, meteorology, and distribution of sources are considered in the monitoring design.

The spatial scale of representativeness for the project (neighborhood) and the sampling schedule will result in measured pollutant concentrations that

are representative of the ambient concentrations experienced by individuals living in the surrounding neighborhood.

Spatial representativeness

Samplers and analyzers for the BV/HP site are expected to meet neighborhood scale siting criteria. Air quality measurements made using neighborhood spatial scale siting criteria represent the uniform air pollutant concentration in an area of 0.5 to 4.0 kilometers (1/3 to 2½ miles) surrounding the probe and sampler inlets. Detailed information on the neighborhood spatial scale siting criteria can be found in 40 CFR, Part 58, Appendix D, and in ARB's Quality Assurance Manual, Volume II, Section 2.0.4.

Temporal representativeness

Monitoring for CO, NO_x, NMHC, O₃, SO₂, PM_{2.5}, and BC will be conducted continuously with the data output as hourly average concentrations. Sampling for PM₁₀, toxic VOCs, carbonyls, Cr(VI), and TE/M will be conducted for 24 hours every six days. *Monitoring and sampling data will be collected for a minimum of one representative calendar year. One representative year is comprised of four (4) representative quarters, with each quarter comprised of three (3) representative months.* Criteria for representativeness of criteria pollutants may be found in ARB's QA Manual, Volume I, Section 1.0.1.

9.3 Completeness

Air monitoring data for the BV/HP site will be complete if there are representative valid data during required hours of the day and during the required calendar months.

The percent completeness is calculated by comparing the amount of valid data obtained to the amount that was expected. *The monthly completeness criteria will be met if the percent completeness is equal to or greater than 75 percent.*

Every effort will be made to obtain sufficient data to achieve four (4) representative calendar quarters for criteria and toxics, particularly for the winter months (November, December, and January) when ambient concentrations of toxics are expected to be highest.

9.4 Comparability

Data comparability is an important objective that should be met in order to analyze data collected at one site with data collected from nearby monitoring sites as well as other routine network monitoring sites. Comparability reflects the confidence with which one data set may be compared to another.

Toxics data will be considered comparable if they are collected coincidentally with samples collected at routine toxics sites using the same, or comparable, methods and procedures.

At least one (1) toxic sample collected at BV/HP each month should be collected coincidentally with the routine toxics network samples collected on a 1 in 12 sampling schedule for north of Tehachapis.

10.0 Quality Assurance

Field and laboratory quality control (QC) procedures are critical to ensuring that data collected are consistent, relevant, and defensible. The ARB's standard field and laboratory QC procedures will be used for this project and are contained in field and laboratory SOPs.

10.1 Field Quality Control

Field QC includes equipment certifications, calibrations, and instrument specific maintenance checks. All monitoring and sampling equipment must be calibrated as detailed in field SOPs and as recommended by the instrument manufacturer. Detailed certification procedures used by the ARB's Standards Laboratory to certify standards used for instrument and sampler calibration are available upon request. Instrument calibrations and maintenance checks will be conducted according to the schedule prescribed in the field SOPs.

10.2 Analytical Quality Control

All samples will be analyzed with reference to laboratory SOPs. Details on laboratory QC procedures, laboratory instrument calibration procedures, LODs, and precision estimates are included in the laboratory SOP, the laboratory QC manual, and quarterly QC reports generated by ILS and OLS and reviewed by a third, independent section within MLD (OPAS).

10.3 Quality Assessment

Quality assessment is accomplished through laboratory and site performance audits. Laboratory performance audits will be conducted annually following the routine laboratory audit procedure and schedule. Currently, the QAS conducts laboratory performance audits for toxic VOC and PM10 mass and ion analyses. The audit results will be evaluated by the QAS and will provide an assessment of the accuracy of the methods used by the laboratory.

Two site performance audits will be conducted for this project, one by the QAS-MLD, and the other by the BAAQMD. The site audit will consist of flow audits for the PM and XonTech 924 samplers and measurement output on the gaseous analyzers. Audits of all meteorological sensors will

also be conducted. The audit results will provide an assessment of the accuracy of sampler flow rate and the output of analyzers and meteorological sensors.

11.0 Data Management

The data management process for this project includes:

- Continuous analyzer data transfer (electronic acquisition of data from station data logger to BAAQMD database and AQS);
- Twenty-four hour sample data transfer (from field data collection, through sample analysis and LIMS, to data submittal to AQS);
- Data review and validation;
- Data storage on AQS; and,
- Data analysis.

All continuous analyzer data will be collected, transferred, validated, and uploaded to AQS by the BAAQMD. Twenty-four hour sample data will be transferred, beginning from receipt in the MLD laboratory, validated, and uploaded to AQS by MLD.

The BAAQMD will establish an AQS account based on information from site initiation reports and Sections 7.1 and 8.0 of this monitoring plan. The format of the BV/HP AQS account will follow that of routine BAAQMD-ARB toxic sites. The laboratory sections within NLB will provide the BAAQMD with all necessary information to establish the AQS account with the BAAQMD as the site's reporting organization. MLD will have access rights to upload 24-hour sample data results.

11.1 Continuous Analyzer Data Review and Validation Procedure

BAAQMD will conduct data review and validation, using appropriate ARB procedures or equivalent BAAQMD procedures. The ambient data will be verified and reviewed through the evaluation of the daily calibration and the equipment maintenance. The highs, lows, spikes, and anomalies will be verified.

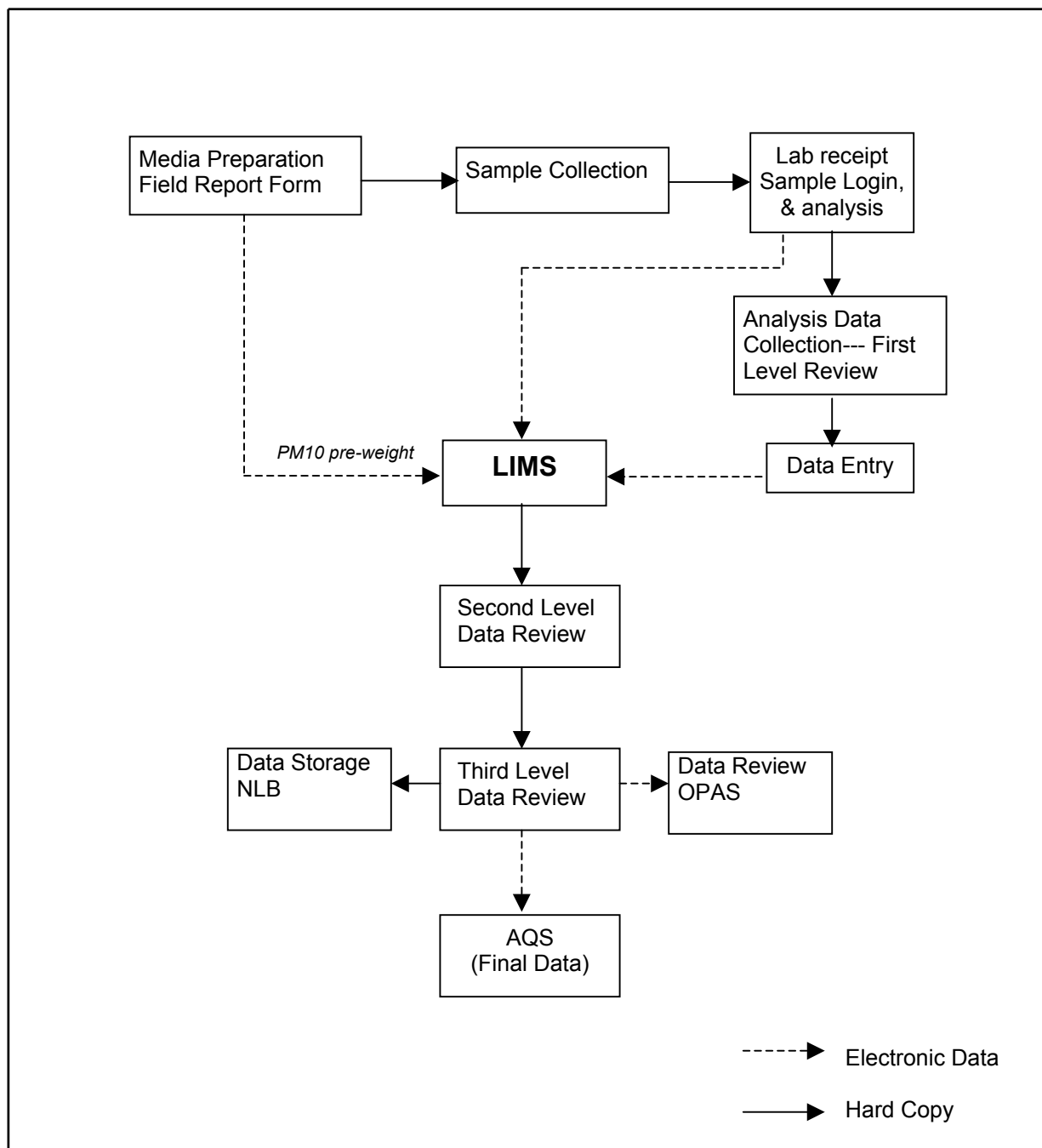
Following review, BAAQMD personnel will submit continuous data to AQS.

11.2 Twenty-four Hour Sample Data Review and Validation Procedure

Three (3) levels of data review and validation, summarized below, will be applied to 24-hour samples. Figure 5 illustrates the data transfer and storage procedure for 24-hour samples.

- Level 1 (A) (inspection of post-sampling filter, canister, or cartridge)
Field operator(s) from BAAQMD will inspect the sample after collection, but prior to forwarding the sample with the field data sheet to the laboratory. Any holes, tears, or contamination on the filters, or

Figure 5: 24-Hour Sample Data Flow



low pressure (<10 psig) in the toxics canister should be appropriately noted on the field data sheet, if necessary. After the sample is received in the laboratory, NLB staff will inspect the sample and review the field data sheet to ensure the field QC criteria listed in Table 5 are met.

- Level 1 (B) (laboratory data review)
Laboratory staff will review all raw data prior to uploading to LIMS. This review includes checking instrument calibrations, control standards, blanks, spikes, duplicate analyses, and chromatographs. Criteria used for each method can be found in laboratory SOPs.
- Level 2
After all samples collected for each month (or quarter) are analyzed and data are uploaded to LIMS, a LIMS report is generated. The NLB staff will review the report for completeness and accuracy.
- Level 3
The NLB Branch Chief or ILS and OLS Section managers will review and approve the LIMS report. All final data are visually checked for consistency and reasonableness. Unusually high or unexpectedly low results will be verified.

NLB personnel will submit the 24-hour sample data to AQS after all appropriate review levels are complete.

11.3 Data Tracking and Storage

BAAQMD will track continuous data collection and storage into AQS and any intermediate databases.

OPAS will track 24-hour samples that have been logged into LIMS. A summary table that includes the valid samples and data collected for each month and number of representative months achieved for each pollutant will be updated quarterly.

The results of all monitoring and sampling will be uploaded to USEPA's AQS within approximately 90 days of collection.

AQS will be the final repository for all data collected for the BV/HP project.

11.4 Data Analysis

Within MLD, OPAS will conduct basic analysis of the toxic pollutant measurements (i.e., 24-hour samples), consisting of summary statistics (minimum, maximum, average) and develop graphical plots of the data in comparison with routine toxic sites.

More comprehensive data analysis is expected to be completed by non-ARB parties at a later date.

12.0 Reporting

12.1 Interim Reports

OPAS will provide a summary memo on the status and progress of the project to ARB upper management every three (3) months. This memo will include status of monitoring and field sampling, laboratory data, and other information that is associated with this project, such as audit results and sampler calibration results. OPAS staff will also provide status and progress information to project representatives in the BAAQMD and the City.

12.2 Final Monitoring Report

At the completion of the project, data will be compiled and BAAQMD, with assistance from MLD, will provide a monitoring report to the City. The monitoring report should include a review and explanation of the project's goals, the sampling design, results, and the means of data validation. A summary should also be given of all field and laboratory quality control.

13.0 References

1. Bortnick, S. M., and S. Stetzer *Sampling Frequency Guidance for Ambient Air Toxics Monitoring*; Journal of the Air & Waste Management Association. 2002, 52: 867-875.
2. San Francisco Department of the Environment
(<http://www.sfgov.org/sfenvironment/index.htm>)
3. ARB's Quality Assurance Manual
(<http://www.arb.ca.gov/aaqm/qmosqual/qamanual/qamanual.htm>)
4. Field Standard Operating Procedures
(<http://www.arb.ca.gov/aqdas/vol2.php>)
5. Laboratory Standard Operating Procedures
(<http://www.arb.ca.gov/aaqm/sop/summary/summary.htm>)
6. 40CFR, Part 58, Appendices A-F

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
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DATA RESPONSES, SET 1A**

Technical Area: Soil and Water Resources

Author: Antonio Mediati

SFERP Author: Matthew Franck

BACKGROUND

The City of San Francisco (City) will provide process water to the SFERP through a new water pumping station (WPS). The water will be treated. The process water for the water treatment plant at the SFERP site will come from the City's combined sewer system at a collection station near Marin Street. The WPS will include infrastructure to remove floatable matter and large debris prior to discharge into the process water pipeline. Excess flow and debris will be returned to the combined sewer system. Water for the SFERP for process and cooling water, equipment wash water and the dual plumbing system (toilets) would be recycled water produced by the new water treatment system on the project site. A new pipeline will be installed along Marin, Mississippi, Cesar Chavez, Tennessee, and 23rd Streets to convey the process water to the new onsite water treatment system. The onsite treatment system will be designed to produce Title 22-quality recycled water, with the treatment system providing primary, secondary, and tertiary treatment plus disinfection either by ultraviolet system or chlorination.

Potable water will be supplied to SFERP to meet minor potable water needs, fire protection demands, and emergency cooling and process backup supplies. The potable water source is the City's potable water distribution system. An existing potable water pipeline of sufficient capacity is located at the corner of Illinois Street and 23rd Street, which will supply water to the SFERP.

Plant wastewater and reject water from the SFERP's water treatment system will be discharged into the City's combined sewer system, which routes the waste to the Southeast Water Pollution Control Plant (SEWPCP).

DATA REQUEST

48. Please provide the information required by Article 22A of the San Francisco Health Code.

Response: The City is working with the San Francisco Department of Public Health (DPH) to compile the information required by Article 22A. The section on soil resources of the SFERP data adequacy supplement sets forth the requirements of Article 22A. As an initial step, based on the existing site history reports prepared on behalf of PG&E, in particular the Phase I ESA previously provided to the CEC with the data adequacy supplement as attachment WM-DA-1 and the Phase II ESA provided now to the CEC in response to Data Request 91 as attachment WM-91, the City will prepare a site history specifically tailored to Article 22A. The next step is soil investigation/analysis. The City expects that much of the soil

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investigation/analysis undertaken for the Phase I and II reports referenced above will serve for the SFERP. In addition, the City undertook additional soil investigation this Spring. Five copies of the analytical results from this investigation are provided as Attachment S&W-48. The City will meet with the DPH in the coming weeks to determine whether additional soil investigation/analysis is needed and to develop a schedule and workplan for completing any additional soil investigation/analysis required, and a site mitigation report.

49. **Please describe the WPS to be constructed.**

Response: The conceptual design of the water pump station (WPS) is provided below:

1. Inlet Structure:

A preliminary flow investigation was performed to determine the design of the inlet structure. It is crucial that flow rates in the Marin Street Box Sewer are large enough, even at minimum flows to maintain the design flow rate to the Pump Station. It is expected that additional level measurements will be taken at the Martin Street Box Sewer so that the range of water levels and flow rates available to the proposed Pump Station can be confirmed prior to final detailed design.

The inlet structure for the proposed pump station will require that a horizontal slot be cut into the Marin Street Box Sewer. This slot will measure 4 inches high by approximately 20 feet long. The bottom edge of the slot will be 2 inches above the bottom of the box sewer vertical wall, allowing sludge and other solids to remain on the box sewer floor. A stainless steel baffle mounted on the wall will prevent floating material from entering the slot. Hydraulic modeling will be required to confirm the exact dimensions of the inlet slot, which will act as an orifice, allowing flows to be diverted by gravity into the new pump station. Refer to the attached drawings: Figure S&W-49A, Pump Station Isometric, Figure S&W-49B, Pump Station Plan, and Figure S&W-49C, Pump Station Sections, for a better understanding of the pump station.

2. Required flows:

Based on a preliminary full flow output capacity of the recycled water system of 0.6 million gallons per day (MGD) or 420 gallons/minute (gpm), the expected capacity of the WPS will be around 500 gpm to allow for primary treatment sluicing, at the water treatment plant. The proposed design assumes a variable flow rate up to 500 gallons/minute. Since the recycled water treatment plant may be operated at a reduced capacity, or lower flow rates are required for other reasons, the pump station design will incorporate the necessary accommodations.

3. Pump Station Equipment:

The pump station's equipment assumes 3 submersible, variable speed pumps piped in parallel and discharging into a common 6- or 8-inch ductile iron force main. The pumps will be mounted on guide rails for maintenance access.

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During normal operation, with the recycled water plant operating at full flow rate, 2 pumps will operate. The third pump serves as a stand-by to be used when one of the other pumps is out of service.

A series of motorized slide gates will be provided at the inlet slot, controlling flow into the Pump Station.

A drain gate (approximately 36 inches wide by 16 inches high) will be provided at the wall adjacent to the Islais Creek Box Sewer.

Ventilation will be provided per NFPA 820. An exhaust rate of 530 cfm will provide 25 air changes per hour.

4. Pump Station Configuration:

The preliminary dimensions of the WPS sump are 22 feet long by 8 feet wide by 17 feet-6 inches overall height. The sump will sit below grade, parallel to and adjacent to the Marin Box Sewer, at its intersection with the Islais Creek Transport. The 20-foot-long box sewer slot described above will allow decanted sewage to flow into the sump. The sump floor will be curved and filleted to minimize solids deposition and will slope toward the drain gate. During normal operation the water level in the Pump Station will be maintained at approximately 5 feet.

During dry weather, when flows in the Islais Creek Transport remain in the cunette, the drain gate may be opened, so that the pump station can be accessed for maintenance or periodic cleaning. During wet weather, the drain gate will remain closed to prevent sewage from the Islais Creek Transport from backing up into the Pump Station.

An aboveground Utility Building will be constructed in close proximity to the Pump Station. The building would house electrical distribution equipment, a ventilation exhaust fan, backflow preventer, San Francisco Water Department (SFWD) water meter, and slide gate actuators (if practicable). This building would be constructed of concrete masonry units on a slab foundation and would have a footprint of approximately 14 feet by 12 feet and will be 1 story high.

Access for future removal and replacement of pumps would be accomplished via traffic-rated removable concrete covers.

Personnel access to the WPS will be via a manhole on Marin Street and a Stainless Steel ladder.

Washdown water in the WPS will be provided via a 1-1/2 inch line connected to a SFWD meter.

5. Pump Station Structural System:

The WPS structure will consist of a cast-in-place concrete underground sump with a mat foundation based on a Geotechnical Engineer's recommendation. The enclosure will consist of concrete walls at all four sides and will include a concrete slab on top.

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Section 4 above, gives the WPS's dimensions and elevations. The walls and floor will be lined with a corrosion-resistant coating.

6. Force Main:

A ductile iron force main will convey the process supply water from the WPS to the recycle water treatment plant on the SFERP site. Velocities in the force main will be high enough to minimize deposition of solids within the pipe. Wherever possible, the force main will include cleanouts at 200-foot intervals. High point vacuum/air release valves will be located at the appropriate high points.

7. Electrical System:

Electrical power to the WPS will be supplied from the nearest PG & E service power pole. Underground incoming main service will be provided to meet the needs of the various loads. SBC Communication service will be furnished to facilitate transfer of data/communication with the Southeast Plant main control room. Power will be supplied to the facility at 480 volts/3 phase/3 wire, 60 Hz and will terminate in a main circuit breaker.

Incoming utility services will terminate in an outdoor main equipment enclosure, rated NEMA 4 (Outdoor), and will be located above ground in the concrete masonry building described in Section 4.

Combination motor starters will be provided for start/stop function of all electrical motors. Conduit for all power, control, and instrumentation will be in conduit, PVC coated, rigid galvanized steel. Power cables will be stranded copper; instrumentation cables will be #16 AWG, 7 stranded, tinned copper conductor, twisted, shielded, and PVC jacketed. Multiple pair instrument cabling will be #18 AWG.

A grounding system will be provided for protection of personnel and equipment.

8. Instrumentation & Controls:

Controls will be designed for Programmable Logic Controller Application.

The following is a preliminary control strategy for the WPS only:

- a) The water level within the pump station will be controlled by inlet sluice gates. An ultrasonic level transmitter mounted on the ceiling of the WPS will open or close the inlet sluice gates, maintaining a constant water level, as the pumps cycle in response to the demand signal from the recycle water plant. A high water level signal in the WPS shall cause the inlet sluice gates to close automatically.
- b) The pumps will shut off automatically on either discharge high pressure or suction low pressure.
- c) The two pumps in service will respond in a lead/lag configuration. Lead-lag pump sequencing shall alternate between two designated pumps with a third pump reserved for standby service.

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- d) The WPS's drain gate will remain closed during normal operation. The gate can be interlocked with a level signal within the Islais Creek Transport, so that it cannot be opened during high flows.

50. Does the applicant intend to obtain a Class I discharge permit from the City. If so, please provide a schedule.

Response: On page 8.14-7, paragraph 2 of the AFC, it states that according to San Francisco Public Works Code Article 4.1 the Applicant will be obtaining a Class I discharge permit.

Regarding the schedule, the City Bureau of Environmental Regulation and Management which issues discharge permits, requires discharge permit applicants to submit an application no less than 90 days prior to the date a permit is needed.

51. Please provide "will-serve" letters for the potable water, process water, and waste discharge (power plant the wastewater treatment plant and construction dewatering).

Response: As stated in Applicant's Clarifications, Reservations of Objections and Notices of Need for Additional time in Response to June 4 Data Request filed on June 14, 2004, the City will provide indications of the capability to provide these services. These indications of capability are provided as Attachment S&W 51.

BACKGROUND

The Power plant and pipeline construction will result in ground disturbance. These activities expose soil to wind and water erosion. They may also require dewatering activities.

DATA REQUEST

52. Please provide a draft erosion and sediment control plan for the entire project (project site, laydown area, pipelines, etc).

Response: A draft Erosion and Sediment Control Plan is provided within the Stormwater Pollution Prevention Plan and is included as Attachment S&W-52.

53. Please provide the estimate of soil loss with BMPs and mitigations in place. List the BMPs to be employed and estimate the effectiveness of each.

Response: Please review Applicant's Clarifications, Reservations of Objections and Notices of Need for Additional time in Response to June 4 Data Request filed on June 14, 2004. The estimates of relative soil loss with BMPs in place can only be done for wind erosion estimates, which are provided as Attachment S&W-53. Estimates of soil loss by water erosion using Revised Universal Soil Loss Equation (RUSLE2) does not have the capacity to evaluate the effect of individual or aggregate construction BMPs because it is based on agricultural activities. It is assumed that aggregate BMP use will reduce soil losses to near negligible levels, a condition represented by the

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Undisturbed State (i.e., the third row) in Table 8.9-4 (page 17 of the Data Adequacy Responses).

54. Please provide a draft of the environmental mitigation plan referenced in section 7.4.

Response: The referenced environmental mitigation plan is actually the Stormwater Pollution Prevention Plan (SWPPP) and Erosion and Sediment Control Plan (ESCP) that will be produced and approved for the site and linears prior to construction. Five copies of the draft Stormwater Pollution Prevention Plan is provided as Attachment S&W-52.

55. Please provide any information available on past flooding to the project site and the local area.

Response: As discussed in Section 8.14.4.5 of the AFC, the project site is located at an elevation of approximately 26 feet above mean sea level and more than 1,000 feet from the shoreline. The project site elevation is above the 100-year tide elevation of 13.0 feet above mean sea level. Based on this, and a map of the San Francisco Community Safety Element, which indicates that there are no areas prone to surface flooding in San Francisco, the potential for flooding at the project site is low.

Surface flooding could occur from sewer overflows because of inadequately sized sewers. However, the City and County of San Francisco has not identified the project vicinity as an area prone to flooding from the sewer system (see San Francisco Public Utilities Commission, 2003. Draft Water System Reliability Assessment, Baseline Facilities Report. December, 2003.). The lack of flooding from the sewer is confirmed by review of records of flooding complaints recorded in the SFPUC Sewer Operations database, maintained by the SFPUC Sewer Operations group since 1995. During this time, there have been no complaints of major flooding in the project vicinity. Although five complaints have been recorded, they were related to overflowing vents and dirty catch basins. (References: Watanabe, 2003. Email from Mark Watanabe, Manager of the SFPUC Sewer Operations Group, to Mary McDonald of Orion Environmental Associates. June 23, 2004.)

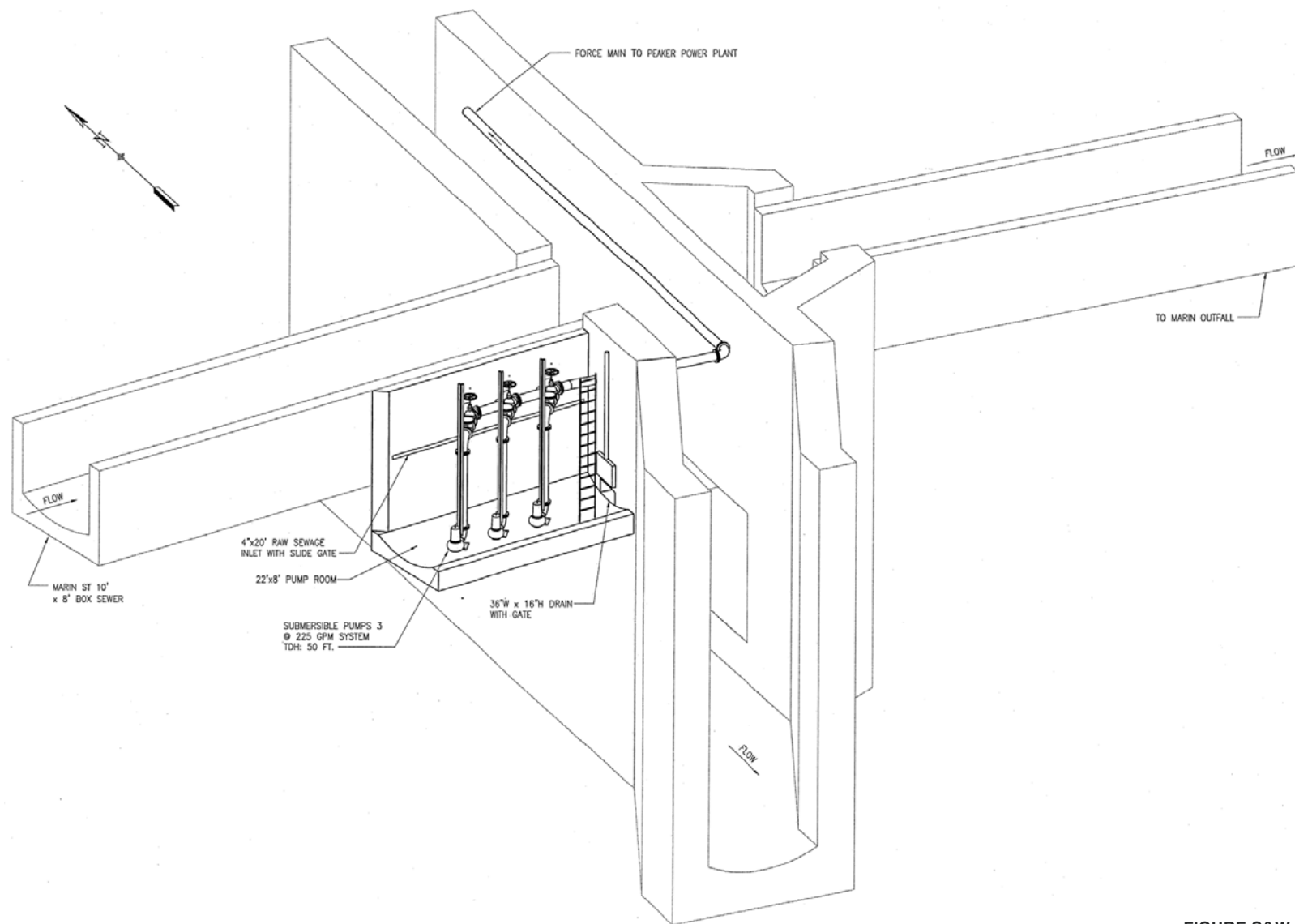


FIGURE S&W-49A
PUMP STATION ISOMETRIC
 SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
CH2MHILL

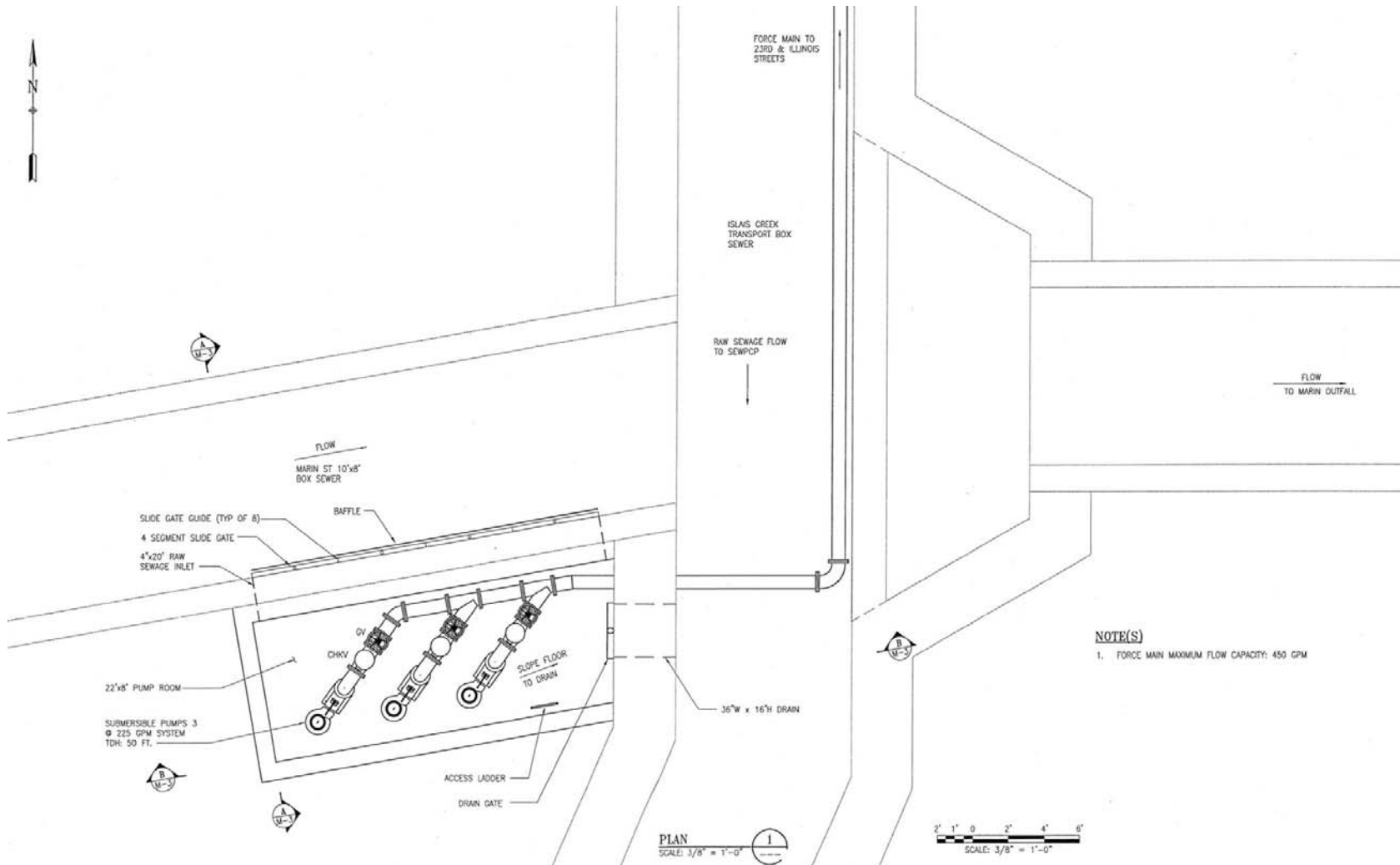


FIGURE S&W-49B
PUMP STATION PLAN
 SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
CH2MHILL

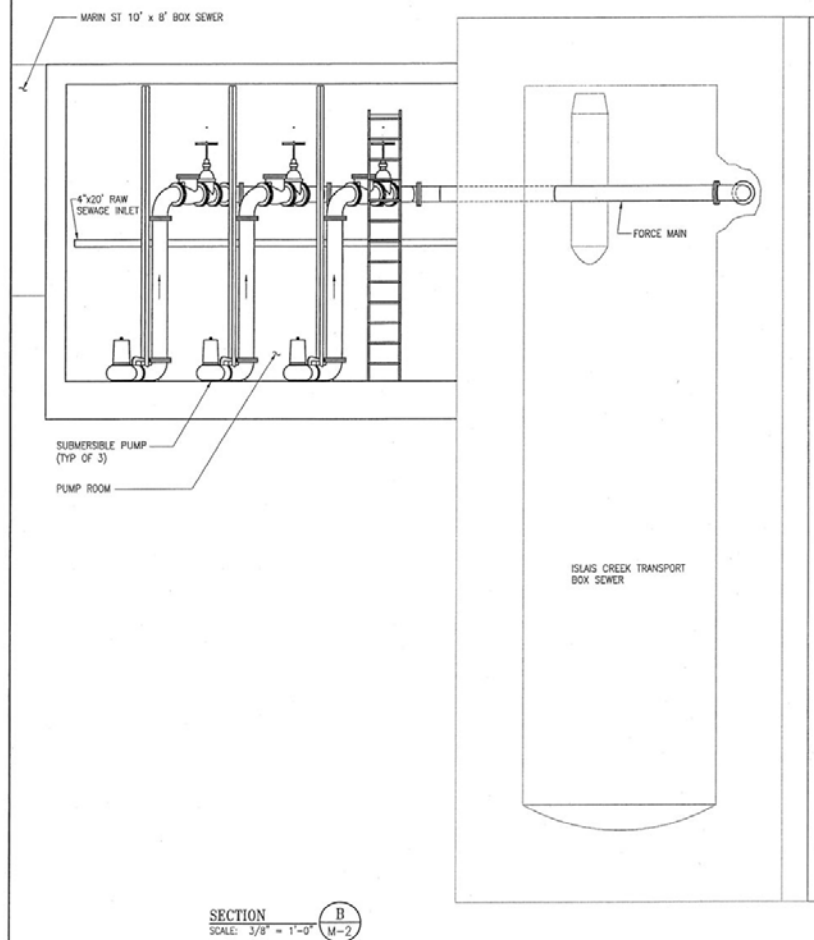
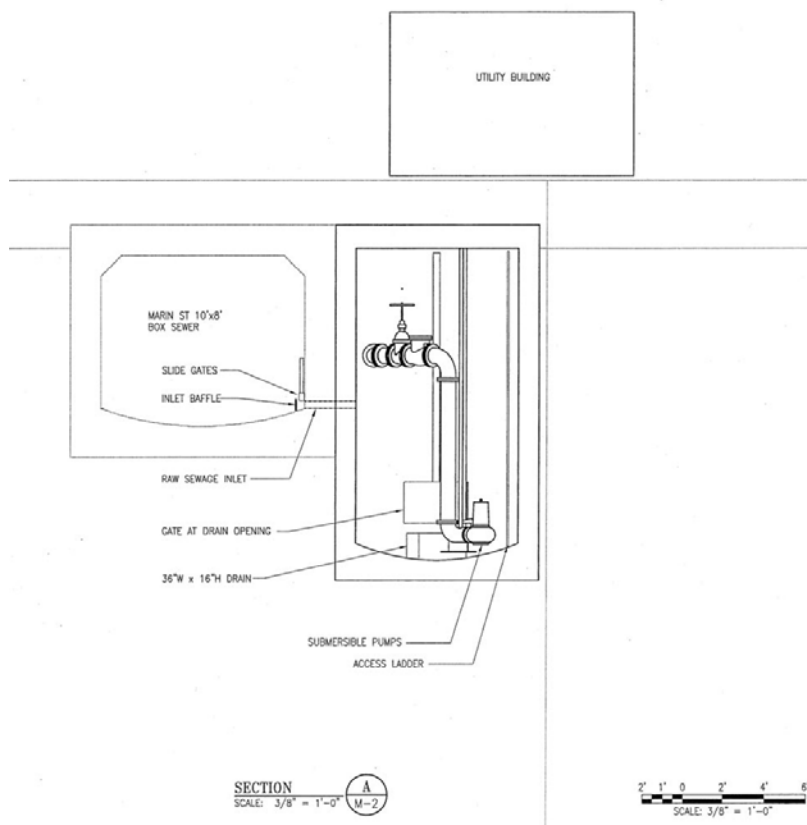


FIGURE S&W-49C
PUMP STATION SECTIONS
 SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
CH2MHILL

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ATTACHMENT S&W-48

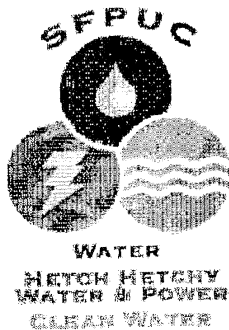
Analytical Results for Soil Sampling Performed at the SFERP Site in Spring 2004

Five copies of the Analytical Results for Soil Sampling Performed at the SFERP Site have been provided to the California Energy Commission. Additional copies may be provided upon request.

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(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT S&W-51

Will Serve Letters



SAN FRANCISCO PUBLIC UTILITIES COMMISSION

Kevin Barry, Division Manager, City Distribution Division



June 28, 2004

Subject: Availability of Water
Assessor's Block 4175, Lot 3
1251 Illinois Street

GAVIN NEWSOM
MAYOR

E. DENNIS NORMANDY
PRESIDENT

ROBERT J. COSTELLO
VICE PRESIDENT

ANN MOLLER CAEN
ADAM WERBACH
RYAN L. BROOKS

CHERYL K. DAVIS
ACTING GENERAL MANAGER

Mr. Ralph Hollenbacher
San Francisco Public Utilities Commission
1155 Market Street
San Francisco, Ca. 94103

Fax: 415-554-0796

Dear Mr. Hollenbacher:

This is in response to your request for a will serve letter for your project at the above referenced address.

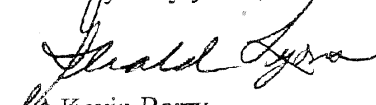
We have existing 8-inch main in Illinois Street and in 23rd Street. Our records show two existing standard domestic water services for block 4175 lot 3, a 1-inch and a 6-inch service.

We can provide additional domestic and fire service(s) upon request. Before installation of potable water service(s) may begin, application must be made with our Customer Service Bureau, New Installations Section, 1155 Market Street, 1st Floor, San Francisco, CA 94103.

Fire service size, if required, must be approved by the Department of Building Inspection.

Potable water is furnished subject to Water Department rules and regulations governing water service to customers.

Very truly yours,


for Kevin Barry
Manager, CDD

KB:kr
Cc: Chron file



SAN FRANCISCO PUBLIC UTILITIES COMMISSION
Bureau of Environmental Regulation and Management

3801 THIRD STREET, SUITE 600, SAN FRANCISCO, CA 94124 • Tel. (415) 695-7310 • Fax (415) 695-7388



June 30, 2004

GAVIN NEWSOM
MAYOR

E. DENNIS NORMANDY
PRESIDENT

ROBERT J. COSTELLO
VICE PRESIDENT

ANN MOLLER CAEN
ADAM WERBACH
RYAN L. BROOKS

CHERYL K. DAVIS
ACTING GENERAL MANAGER

Mr. Ralph Hollenbacher
Manager, Power Plant Development
San Francisco Public Utilities Commission
1155 Market Street, Fourth Floor
San Francisco, CA 94103

**SUBJECT: Proposed San Francisco Electric Reliability Project,
Industrial Wastewater and Stormwater Discharge Permit
Requirements**

Dear Mr. Hollenbacher:

We have reviewed the request from Ms. Joyce Hsiao, dated January 30, 2004, for the Bureau of Environmental Regulation and Management's (BERM's) concurrence in issuing an Industrial User Wastewater Permit for the proposed San Francisco Electric Reliability Project.

All wastewater discharges to the City and County of San Francisco's (City's) sewerage system, from the operation and maintenance of the facility, would be required to be in compliance with the City's discharge limits. Those limits are contained in Section 123(a) of Article 4.1, Chapter X, Part II of the San Francisco Municipal Code, and in the City's Department of Public Works Order No. 158170. The facility's wastewater discharges would also be subject to the applicable federal regulations contained in 40 CFR Part 423 (Steam Electric Power Generating Point Source Category).

Based on the estimated wastewater quality characteristics presented in Ms. Hsiao's attached Table 2, that wastestream would comply with the City's discharge limits. The facility would be required to submit a wastewater discharge permit application, including a baseline monitoring report, at least 90 days prior to the commencement of any discharge related to the operation and maintenance of the facility. After reviewing the application BERM would issue a Class I Industrial User Wastewater Permit to the facility, and the facility would be required to submit a compliance report within 90 days following the commencement of wastewater discharges.

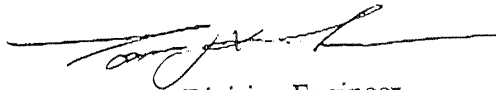
- 2 -

We note from your e-mail of June 30, 2004 that the updated daily wastewater discharge rates are 164 gpm average and 179 gpm maximum. We have reviewed the sewer map on 23rd St, east of Illinois St. and have noted that the size of the sewer is 12 inches in diameter. We therefore recommend that you confirm with the City's Bureau of Water Pollution Control that the hydraulic capacity of that sewer would not be exceeded.

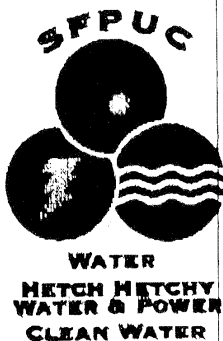
During the construction phase of the facility any dewatering activity would require a permit from BERM. To address stormwater runoff from the facility, the developer will be required to develop and submit to BERM for review an erosion and sediment control (ESC) plan to reduce the impact of runoff from the construction site. Periodic inspections will occur to insure compliance with the ESC.

If you have any questions about this response, please contact Tommy Lee at (415) 695-7321.

Very truly yours,



Tommy Lee, Division Engineer
Environmental Regulation
and Management



San Francisco Public Utilities Commission
Water Pollution Control Division



July 1, 2004

Mr. Ralph Hollenbacher
San Francisco Public Utilities Commission
1155 Market Street
San Francisco, CA 94103
Fax: 415-554-0796

GAVIN NEWSOM
MAYOR

E. DENNIS NORMANDY
PRESIDENT

ROBERT J. COSTELLO
VICE PRESIDENT

ANN MOLLER CAEN
ADAM WERBACH
RYAN L. BROOKS

CHERYL K. DAVIS
GENERAL MANAGER


Subject: Process Water Supply to Recycled Water Plant for the Proposed Power
Plant at Assessor's Block 4175, Lot 3, 1251 Illinois Street, S. F.

Dear Mr. Hollenbacher:

This is in response to your request for a will serve letter for your project at the
above referenced address.

Up to 500 gallons/minute of wastewater can be withdrawn from the combined
sewer system at Marin Street to provide process water supply for the SFERP
recycled water treatment plant.

Sincerely yours,


Bill Keaney
Manager, WPCD

c.c. Jon Loiacono
Meei-Lih Ahmad

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT S&W-52

Draft Stormwater Pollution Prevention Plan

Five copies of the Draft Stormwater Pollution Prevention Plan have been provided to the California Energy Commission. Additional copies may be provided upon request.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT S&W-53

Wind Erosion Estimates

ATTACHMENT S&W-53

Wind Erosion

The potential for wind erosion of surface material at the SFERP was estimated by calculating the total suspended particulate that could be emitted from active grading activities and the wind erosion of exposed soil. The total site area and grading duration were multiplied by emission factors to estimate the total suspended particulate matter (TSP) emitted from the site. Fugitive dust from site grading was calculated using the default particulate matter less than 10 microns in equivalent diameter (PM₁₀) emission factor used in URBEMIS2002 and the ratio of fugitive TSP to PM₁₀ published by the Bay Area Air Quality Management District (BAAQMD).

(<http://www.baaqmd.gov/pmt/handbook/s12c03fr.htm>) Fugitive dust resulting from the wind erosion of exposed soil was calculated using the emission factor in AP-42 Table 11.9-4.

Mitigation measures, such as watering exposed surfaces, are used to reduce PM₁₀ emissions during construction activities. The BAAQMD has not published PM₁₀ emission reduction efficiencies for mitigation measures. Therefore, PM₁₀ reduction efficiencies from the South Coast Air Quality Management District (SCAQMD) CEQA Handbook (1993) were used to estimate the effectiveness of the mitigation measures. Table 8.9-5 summarizes the mitigation measures and PM₁₀ efficiencies applied to the emission calculations.

TABLE 8.9-5
Mitigation Measures for Fugitive Dust Emissions

Mitigation Measure	PM ₁₀ Emission Reduction Efficiency	Efficiency Applied
Water active sites at least twice daily	34-68%	50%
Enclose, cover, water twice daily, or apply non-toxic soil binders, according to manufacturer's specifications, to exposed piles (i.e., gravel, sand, dirt) with 5% or greater silt content	30-74%	50%

Source: SCAQMD CEQA Handbook, Table 11-4. (1993)

Table 8.9-6 below summarizes the mitigated TSP predicted to be emitted from the site from grading and the wind erosion of exposed soil. The maximum predicted erosion of material from the site with implementation of mitigation measures is estimated at 3.4 tons per year.

TABLE 8.9-6
TSP Emitted from Grading and Wind Erosion with Mitigation

Emission Source	Duration (months)	Acreage	Mitigated TSP (tons)
Grading	5	4.5	2.06
Wind Blown Dust:			
Site	10	4.5	0.71
Laydown Area	4	10.0	0.63
Total			3.4

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Sources:

Jones and Stokes, 2003. *Software User's Guide: URBEMIS2002 for Windows with Enhanced Construction Module*. May.

EPA, 1995. *Compilation of Air Pollutant Emission Factors AP-42*. Volume I: Stationary Point and Area Sources. Fifth Edition. January.

South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. November.

ATTACHMENT S&W-53

Dust from Wind Erosion - With Mitigation

Grading

PM10 Emission Factor (ton/acre/month)*	0.11 *Emission Factor Source: URBEMIS2002 User's Guide, May 2003
Duration (months):	5 (3 months demolition, 2 months active grading)
Site Acreage:	4.5
PM10 Emitted (tons):	2.5
TSP Emitted (tons):	4.1 assume TSP is 60% PM10
Mitigated TSP Emitted (tons):	2.06 Assume 50% reduction in PM10 with watering twice daily per SCAQMD CEQA Handbook (1993) Table 11-4

Wind Blown Dust

TSP Emission Factor (ton/acre/year)	0.38 Emission Factor Source: AP-42, Section 11.9 Western Surface Coal Mining Table 11.9-4, January 1995.
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Site

Acres exposed	4.5
Duration (months)	10
TSP Emitted for Site (tons):	1.4
Mitigated TSP Emitted (tons):	0.71 Assume 50% reduction in PM10 per SCAQMD CEQA Handbook (1993) Table 11-4

Laydown Area

Acres exposed	10
Duration (months)	4
TSP Emitted from Laydown area (tons):	1.3
Mitigated TSP Emitted (tons):	0.63 Assume 50% reduction in PM10 per SCAQMD CEQA Handbook (1993) Table 11-4

Total (tons)	3.4
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ATTACHMENT S&W-53

Dust from Wind Erosion - Without Mitigation

Grading

PM10 Emission Factor (ton/acre/month)*	0.11 *Emission Factor Source: URBEMIS2002 User's Guide, May 2003
Duration (months):	5 (3 months demolition, 2 months active grading)
Site Acreage:	4.5
PM10 Emitted (tons):	2.5
TSP Emitted (tons):	4.1 assume TSP is 60% PM10

Wind Blown Dust

TSP Emission Factor (ton/acre/year)	0.38 Emission Factor Source: AP-42, Section 11.9 Western Surface Coal Mining Table 11.9-4, January 1995.
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Site

Acres exposed	4.5
Duration (months)	12
TSP Emitted for Site (tons):	1.7

Laydown Area

Acres exposed	10
Duration (months)	4
TSP Emitted from Laydown area (tons):	1.3

Total (tons)	7.1
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SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

Technical Area: Traffic and Transportation

Author: Ken Peterson

SFERP Author: Loren Bloomberg

BACKGROUND

Table 8.10-2 uses 1999 and 2002 sources for traffic data. We are concerned that the 1999 data may have become obsolete during the last five years of development in southeast San Francisco.

DATA REQUEST

56. Please submit 2003 sources for Table 8.10-2 and Figures 8.10-3 through 8.10-6.

Response: Staff at the Department of Parking and Traffic of City and County of San Francisco were contacted to identify recent traffic data collected in the corridor. They provided the most recent traffic data for the streets analyzed excepting average daily traffic volumes for 23rd Street, Illinois Street, Marin Street and Tennessee Street. Also, more recent freeway data were obtained from Caltrans. An updated version of Table 8.10-R2 is provided below. Changes in the Table will result in corresponding changes to the AFC text in Section's 8.10.2.2.1 and 8.10.2.2.2 as provided in the Data Adequacy Supplement (April 16, 2004).

TABLE 8.10-R2
Characteristics of Roadways in Project Study Area

Name	Classification ^a	Average Daily Traffic Volume	Peak Hour Volume
Local Roadways			
Third Street	Major Arterial	18,800 ^c	1,750 ^c
16 th Street	Secondary Arterial	12,300 ^c	1,200 ^c
23 rd Street	Collector Road	3,000 ^d	200 ^c
25 th Street	Collector Road	2,600 ^c	480 ^c
Evans Avenue	Major Arterial	9,700 ^c	750 ^c
Cesar Chavez Street	Major Arterial	15,000 ^c	1,220 ^c
Illinois Street	Collector Road	3,400 ^b	230 ^d
Pennsylvania Avenue	Collector Road	19,000 ^c	1,270 ^d

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

TABLE 8.10-R2
Characteristics of Roadways in Project Study Area

Name	Classification ^a	Average Daily Traffic Volume	Peak Hour Volume
Regional Roadways			
I-280(post mile 6.05) ^e	Freeway	92,000	7,050
U.S. 101(post mile 2.92) ^e	Freeway	249,000	15,650
I-80 (post mile 4.4) ^e	Freeway	197,500	12,500

Notes:

^a Source: Vehicular Street Map, Transportation Element, City and County of San Francisco, 1995

^b Source: Korve Engineering, 1999

^c Source: Daily and peak hour volumes from City of San Francisco Department of Parking and Transportation (DPT), 2004.

^d Peak hour volume and ADT were determined based on 6.7% K-factor of adjacent streets.

^e Source: State of California, Department of Transportation (Caltrans), 2003

Figures 8.10-3R, 8.10-4R, and 8.10-5R submitted in the Data Adequacy Supplement, reflect intersection turning movement data provided by DPT for both existing and future forecasts. While these data are generally consistent with the ADTs and peak hour volumes presented in Table 8.10-2, they reflect a greater level of detail. The data in Table 8.10-R2 reflect a generic section of each roadway, and not a specific intersection. The updated traffic data from Table 8.10-R2 does not directly affect these Figures, so no changes are proposed. Figure 8.10-6 only summarizes construction trips; these are unaffected by existing traffic counts.

57. Please explain any need to use earlier sources.

Response: Earlier sources of data were used because newer data for ADT and peak hour volume for surface streets were not made available to the drafters at the time the AFC was prepared. Most of the traffic data were obtained from the Traffic and Transportation section of the Potrero Power Plant Unit 7 Application for Certification, published in 1999. As noted in Data Response #56, City staff were contacted to determine the availability of additional data; any older counts reflect the best available data for that location.

58. Please identify the sources for Figures 8.10-3 through 8.10-6.

Response: Intersection turning movement counts for existing (2000) conditions were determined from data published in the Korve report (1999). Average growth rates for 20th Street intersection and 25th Street intersection were used for estimating traffic volumes at 23rd Street intersection. Attachment TRANS-58 summarizes the traffic volumes for the intersections analyzed, including the construction traffic impacts.

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(04-AFC-1)
DATA RESPONSES, SET 1A**

BACKGROUND

Section 8.10.4, Cumulative Impacts may not be complete in terms of reflecting all reasonably foreseeable projects in the SFERP vicinity. This section states that Segment C of the 16th Street to 23rd Street Light Rail extension would be near completion at the time of SFERP's peak construction months, and so there would be no significant construction timing issues relating to peak hour construction trips. Additionally, the cumulative impacts discussion does not include the following proposed projects:

- 71-unit residential units and retail project at 1275/1301 Indiana Street.
- 141 residential unit and retail project at 2235 3rd Street.

DATA REQUEST

59. Given the possibility of construction delays for any large project, please submit an analysis of cumulative traffic impact if the construction of the above-noted Light Rail extension were to coincide with SFERP's peak construction months.

Response: Velmo Garcia of MUNI was contacted in June 2004. Ms. Garcia indicated that the schedule outlined in Section 8.10.4 was still materially correct, with construction expected to be complete on Segment C by Spring, 2005. The narrative in Section 8.10.4 (as revised in the Data Adequacy Supplement) indicates that the reasonable expectation is that the Light Rail project (Segment C) will be winding down during the construction of the proposed project. As the number of Segment C construction trips expected during this period will be relatively low, it is expected that there will be no significant construction impacts. While it is certainly possible that the construction of the Light Rail (particularly Segment C) *could* be delayed, the analysis focused on the reasonable expectation and best knowledge of those associated with the project.

60. Please submit an analysis of cumulative traffic impact for the proposed 1275/1301 Indiana Street project.

Response: A draft copy of the CEQA report for the 1275/1301 Indiana Street project [note that the CEQA report for 2235 3rd Street project has not yet been submitted to the City and County of San Francisco's (CCSF) Planning Department] was obtained. A preliminary mitigated negative declaration for the 1275/1301 Indiana Street project was submitted to the CCSF's Planning Department on April 17, 2004. The CEQA document has not been approved by the Planning Department. There is no certainty that it will be approved by the Planning Department; if it is, it would then have to be reviewed and approved by the Building Department.

The following discussion is based on the draft CEQA Report. The proposed project would include a total of 71 residential units (in two buildings), approximately 5,000 square feet of retail space, nearly 19,000 square feet of Production, Distribution and Repair (PDR) space, and 153 parking spaces. The project would add 119 p.m. peak

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hour vehicular trips. Based on the analysis provided in the draft CEQA report, the project-generated traffic results in only minor increases in delay to signalized intersections in the area; no changes in LOS were projected. All intersections were projected to operate at LOS C or better, with the proposed project.

A construction period of 12 to 14 months is anticipated, and there is no timetable for starting construction. The draft CEQA document did not identify specific numbers of trips for construction activities, but did assert that the construction-related traffic would not cause a significant impact. If the project is approved, it would not be constructed until at least 2005 (more likely 2006). Thus, even with an overlap in construction between the SFERP project and the 1275/1301 Indiana Street project and even with both projects in place, significant cumulative impacts are unlikely.

BACKGROUND

The intersection of 23rd Street and 3rd Street is part of the construction traffic route, but is not included in tables and narrative regarding existing and future LOS levels.

DATA REQUEST

61. Please submit revised Tables 8.10-4 and 8.10-6 with inclusion of the intersection of 23rd Street and 3rd Street and revised narrative as necessary.

Response: Table 8.10-4R and 8.10-6R as provided in the Data Adequacy Supplement should be replaced by the following tables 8.10-4R2 and 8.10-6R2.

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT (04-AFC-1) DATA RESPONSES, SET 1A

TABLE 8.10-4R2

Level of Service Summary for Existing, Baseline 2005, and Cumulative (2015) Conditions

Intersection	Peak Hour	Existing (2000)		Baseline (2005)		Cumulative (2015)	
		LOS	Delay ^a	LOS	Delay ^a	LOS	Delay ^a
Third Street/16th Street	a.m.	B	12.1	B	16.8	C	25.7
	p.m.	B	14.5	B	16.7	C	22.0
Third Street/20th Street	a.m.	A	3.1	A	2.7	C	20.1
	p.m.	A	2.8	A	3.6	C	27.4
Third Street/23rd Street	a.m.	A	3.4	A	6.0	C	27.5
	p.m.	A	4.7	A	8.2	C	22.6
Third Street/25th Street	a.m.	B	11.9	A	6.7	B	13.2
	p.m.	B	11.3	A	8.2	B	11.7
Third Street/Cesar Chavez Street	a.m.	C	27.1	C	28.3	D	39.9
	p.m.	C	24.5	C	31.0	D	40.0
Third Street/Evans Avenue	a.m.	D	37.3	D	39.6	D	44.7
	p.m.	C	24.0	C	26.5	D	36.0
Evans Avenue/Cesar Chavez Street	a.m.	B	13.6	B	14.0	B	16.6
	p.m.	B	19.4	C	26.6	C	31.1

Note:

^a Delay in seconds per vehicle.

TABLE 8.10-6R2

Level of Service Summary for 2005 Plus Project Construction Conditions

Intersection	Peak Hour	Baseline (2005)		2005 Plus Project	
		LOS	Delay*	LOS	Delay *
Third Street/16th Street	a.m.	B	16.8	C	23.8
	p.m.	B	16.7	B	18.2
Third Street/20th Street	a.m.	A	2.7	A	5.4
	p.m.	A	3.6	A	3.2
Third Street/23rd Street	a.m.	A	6.0	A	5.0
	p.m.	A	8.2	B	8.2
Third Street/25th Street	a.m.	A	6.7	A	7.3
	p.m.	A	8.2	B	13.1
Third Street/Cesar Chavez Street	a.m.	C	28.3	D	52.8
	p.m.	C	31.0	D	39.6
Third Street/Evans Avenue	a.m.	D	39.6	D	43.2
	p.m.	C	26.5	C	32.4
Evans Avenue/Cesar Chavez Street	a.m.	B	14.0	B	16.7
	p.m.	C	26.6	C	23.1

Note:

* Delay in seconds per vehicle

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(04-AFC-1)
DATA RESPONSES, SET 1A**

BACKGROUND

Page 8.10-12 (revised 4/8/04) refers to a freeway mainline level of service analysis, but does not refer to an author or source for this analysis.

DATA REQUEST

62. Please submit a reference for the freeway mainline level of service analysis referred to on page 8.10-12 (revised 4/8/04).

Response: Peak hour volumes and freeway configurations from the MTC model were analyzed using the Highway Capacity Software (HCS) to evaluate LOS at freeway segments adjacent to project. Peak hour volumes for different scenarios (2003, 2005, 2015) were linearly interpolated from the MTC model data. Attachment TRANS-62 summarizes the HCS 2000 output for this analysis.

BACKGROUND

The roadway segments that are part of the water supply pipeline route include Marin and Tennessee Streets, but the AFC does not include current traffic information for these streets, or an analysis of pipeline construction impact on any streets included in the pipe route.

DATA REQUEST

63. Please include traffic information for the segments of Marin and Tennessee Streets that are part of the water supply pipeline route.

Response: Tennessee Street functions as a secondary north-south arterial and extends from Mariposa Street to Marin Street. This roadway is undivided and provides one lane of travel in each direction. There are no vehicle weight and load restrictions and there is on-street parking on both sides of the street north of 26th Street. There is a planter across the street approximately 150 feet south of 25th Street; therefore vehicles traveling north-south have to go around via 3rd Street or Minnesota. The water supply pipeline will go along Tennessee Street from 23rd Street to Cesar Chavez. There are two-way stop controls along Tennessee Street at 23rd Street, 24th Street, 26th Street and Cesar Chavez. Land use adjacent to Tennessee Street is industrial. Marin Street is a east-west collector. The segment of Marin Street between Evans Avenue and the rail line will be affected by the water supply pipeline construction. This segment is undivided with a cul-de-sac at the east end. This roadway is undivided and provides one lane of travel in each direction. In addition, there are no vehicle weight and load restrictions and there is on-street parking on both sides of the street. Land use adjacent to Marin Street is industrial.

64. Please provide a traffic analysis of pipeline construction impact on streets included in the pipe route.

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DATA RESPONSES, SET 1A

Response: The physical construction of the pipeline (particularly trenching and jack-and-bore operations) will affect operations on the streets and intersections identified in Data Request #63. Associated impacts may include reduced capacity due to work zones and lane closures, emergency service access limitations, and pedestrian facility closures. To address these impacts, the project will prepare a Transportation Management Plan (TMP) to offset traffic impacts associated with the construction of the pipeline. TMP measures would include the following requirements of the contractor:

- Maintain the maximum possible amount of travel lane capacity on roads during non-construction periods and provide traffic control at all construction sites.
- Limit the work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. Detour plans would be submitted to the City and Caltrans as part of the permit requirements.
- Notify all property owners and residents on streets where construction will occur, including postings of notices and appropriate signs.
- Coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.
- Identify all access restrictions expected to occur during construction. Develop a plan for notifying the affected businesses, homes, and other facilities, and prepare a plan to ensure adequate access at all times. This plan may involve alternate access, detours, or other temporary mitigations.
- Provide temporary pedestrian and/or bicycle access, through detours or safe areas along the construction zone.

The TMP will allow for the roadways providing access to the project site and plant and pipeline lay down areas to provide adequate capacity to accommodate the impacts of construction. The construction worker trips (7 in the a.m. and p.m. peak hours, using 1.14 AVO for 8 workers) would not have a measurable impact on the streets in the study area. With the TMP to address issues related to pipeline construction, impacts are expected to be less-than-significant.

BACKGROUND

The AFC does not include the volume design capacity of roadways to be used by construction trucks and workers.

DATA REQUEST

65. Please describe the volume design capacity of roadways listed in Table 8.10-2.

Response: It is assumed that the author was asking for capacity estimates on roadways listed in Table 8.10-2. Capacity is generally defined in terms of vehicles/hour in one direction. For freeways, that figure is generally 2,000 to 2,200

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

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vehicles/hour/lane. US 101 would have an estimated capacity of 8,000 to 8,800 vehicles/hour in each direction. I-280 would have a similar capacity in the 8-lane sections, and a capacity of 6,000 to 6,600 vehicles/hour in the 6-lane sections. The volume data in Table 8.10-R2 (peak hour volume) reflects two directions of traffic. For the freeways, the one-way capacity value could be doubled to determine (approximately) two-way capacities. Some jurisdictions and agencies use an actual or assumed k-factor (6.7 percent was used for the surface streets in this analysis) to determine an assumed daily capacity. For an 8-lane freeway (capacity of 8,400 vehicles/hour per direction), daily capacity might be approximately 250,000 with this calculation. Six-lane freeways would have a capacity of approximately 190,000.

For arterials, the capacity calculation is more difficult, because it depends on the traffic signals and other constraints. The saturation flow rate on surface streets is typically 1,700 to 1,900 vehicles/hour/lane, but the actual maximum volume is much lower, depending on signal timing. For major arterials, 1,200 vehicles/hour/lane may be an appropriate estimate; lower values are needed for lower roadway classifications. However, since capacity is a function of intersection operations (which vary along each street), it is not meaningful to estimate operational capacity. Planning-level estimates of daily capacity by classification are sometimes used, but these estimates are not pertinent to the specific discussion provided in Table 8.10-R2.

BACKGROUND

The percentage of current traffic flows for passenger vehicles versus trucks for the portion of 23rd Street that is part of the construction truck route is not included in the AFC.

DATA REQUEST

66. Please provide the percentage of current traffic flows for passenger vehicles versus trucks for the portion of 23rd Street that is part of the construction truck route.

Response: The current peak hour truck percentage on 23rd Street in the project vicinity is one percent (MTC model, 2004).

BACKGROUND

Inbound and outbound truck routes are described for hazardous materials transport, but not for construction equipment, materials, and waste transport.

DATA REQUEST

67. Please submit a description of construction truck traffic routes.

Response: Construction truck traffic routes will depend on the specific vehicles (their origins and destinations), the types of trucks, and the individual drivers.

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

DATA RESPONSES, SET 1A

Except for hazardous materials transport (described in Section 8.10.3.9), no truck traffic routes will be pre-specified. However, it is likely that most truck traffic will use the following routes:

- For inbound trucks, from the Peninsula, South Bay, East Bay (south of Oakland) and other points south: northbound US 101 to northbound I-280, exiting at Evans Avenue/Cesar Chavez Street. Eastbound on Evans Avenue to eastbound Cesar Chavez, then west to 3rd Street, then north on Third Street to the project site.
- For inbound trucks from the East Bay (Oakland and north), San Francisco, and other points east and north: southbound I-280 exiting at Pennsylvania Avenue. South on Pennsylvania Avenue to eastbound Cesar Chavez Street to north on Third Street to the project site.
- For outbound trucks to the Peninsula, South Bay, East Bay (south of Oakland) and other points south: southbound Third Street to westbound Cesar Chavez Street. North on Pennsylvania Avenue to the I-280 southbound on-ramp.
- For outbound trucks to the East Bay (Oakland and north), San Francisco, and other points east and north: southbound Third Street to either westbound Cesar Chavez Street or to westbound 25th Street. North on Indiana Street to the I-280 northbound on-ramp.

Other routes may include the US 101/Cesar Chavez interchange to the west of the project area, and local access to San Francisco (likely via Third Street).

BACKGROUND

The west exit off-ramp for Cesar Chavez Avenue from the US 280 highway may be a safety consideration for project construction and operations delivery trucks due to this ramp's steep curve.

DATA REQUEST

68. Please analyze the danger to truck traffic that could be caused by the curve of the Cesar Chavez Avenue west off-ramp from the US 280 highway and describe any necessary mitigation.

Response: It is assumed that this data request refers to the southbound I-280 exit ramp to Pennsylvania Avenue, north of 25th Street. Caltrans 2002 traffic counts suggest an average daily traffic volume of 6,700 vehicles/day (<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/districtbreakdown.htm>). This ramp provides indirect access to Cesar Chavez Avenue. This off-ramp is the only nearby access to the industrial areas from southbound I-280, so truck volumes are likely higher than the general traffic on mainline I-280. Given the fact that this is an established ramp with regular truck traffic (more than 100 trucks per day), Caltrans should be aware of any safety deficiencies and necessary improvements. While the project will add temporary truck traffic to this ramp, the project will not affect the safety of any *individual* truck, so no mitigation is necessary.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

BACKGROUND

Because there are housing developments near the project truck route, it is necessary to assess project impact on school bus routes.

DATA REQUEST

69. Please work with San Francisco School District transportation staff on the Commission staff's May 18, 2004 request for a phone conference to discuss school bus route issues.

Response: Please review Applicant's Clarifications, Reservations of Objections and Notices of Need for Additional time in Response to June 4 Data Request filed on June 14, 2004. The City was not copied on any communication with San Francisco School District and CEC transportation staff, and we are not clear what is being requested. The Applicant would be pleased to help facilitate a conference call between the School District and the CEC Staff if that is what is being requested.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT TRANS-58

Traffic Volume Table

ATTACHMENT TRANS-58

TRAFFIC VOLUME TABLE

INTERSECTION 1

Name: Third & 16th								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	2,798	3,115	2,972	3,336	59	59	3,031	3,396
NBL	229	232	248	270	3	57	251	327
NBT	1,502	1,010	1,514	1,115	0	0	1,514	1,115
NBR	20	12	20	12	0	0	20	12
SBL	67	20	82	23	0	0	82	23
SBT	547	1,250	549	1,256	0	0	549	1,256
SBR	22	143	36	139	0	0	36	139
EBL	120	88	103	96	0	0	103	96
EBT	45	58	112	72	0	0	112	72
EBR	162	138	195	143	57	3	252	146
WBL	19	19	25	16	0	0	25	16
WBT	46	87	62	142	0	0	62	142
WBR	19	58	25	52	0	0	25	52

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	25	3	57
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
25	0	57	3
0	0	0	0
0	0	0	0
0	0	0	0

2015 Baseline	
AM	PM
3,320	3,779
286	346
1538	1,325
19	11
113	30
553	1,269
64	130
70	113
245	100
262	153
38	10
94	251
38	41

INTERSECTION 2

Name: Third & 20th								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	2,066	2,231	2,202	2,494	59	59	2,261	2,553
NBL	31	28	50	60	0	0	50	60
NBT	1,156	1,048	1,242	1,062	57	3	1,298	1,064
NBR	18	21	19	25	0	0	19	25
SBL	48	78	41	103	0	0	41	103
SBT	672	921	681	1,095	3	57	684	1,152
SBR	31	37	59	52	0	0	59	52
EBL	38	24	38	24	0	0	38	24
EBT	13	7	13	7	0	0	13	7
EBR	23	18	23	18	0	0	23	18
WBL	22	29	18	29	0	0	18	29
WBT	5	11	5	11	0	0	5	11
WBR	9	9	13	9	0	0	13	9

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
25	0	57	3
0	0	0	0
0	0	0	0
0	25	3	57
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

2015 Baseline	
AM	PM
2,474	3,020
87	123
1413	1,089
22	32
28	154
699	1,443
115	81
38	24
13	7
23	18
9	29
5	11
22	9

INTERSECTION 3

Name: Third & 25th								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	2,098	2,341	2,246	2,568	237	237	2,483	2,805
NBL	64	87	66	93	0	0	66	93
NBT	1,352	993	1,436	1,062	0	0	1,436	1,062
NBR	15	35	17	32	170	8	186	40
SBL	6	15	6	15	57	3	63	18
SBT	463	967	523	1,117	0	0	523	1,117
SBR	37	39	36	41	0	0	36	41
EBL	40	20	40	23	0	0	40	23
EBT	20	6	20	6	0	0	20	6
EBR	84	90	84	90	0	0	84	90
WBL	0	37	0	37	6	124	6	161
WBT	11	9	11	9	2	45	13	54
WBR	6	43	6	43	3	57	9	100

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
0	0	0	0
75	0	170	8
25	0	57	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	55	6	124
0	20	2	45
0	25	3	57

2015 Baseline	
AM	PM
2,541	3,021
71	105
1604	1,200
20	26
7	15
644	1,416
34	45
40	29
20	6
84	90
0	37
11	9
6	43

ATTACHMENT TRANS-58

INTERSECTION 4

Name: Third & Cesar Chavez								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	3,696	3,234	3,733	3,470	176	133	3,908	3,603
NBL	400	273	399	328	0	0	399	328
NBT	1,736	708	1,553	819	45	2	1,598	821
NBR	40	21	28	15	0	0	28	15
SBL	53	25	48	27	0	0	48	27
SBT	734	1,502	702	1,326	0	0	702	1,326
SBR	116	235	125	312	6	124	131	437
EBL	244	172	363	230	124	6	488	236
EBT	79	47	82	56	0	0	82	56
EBR	213	145	325	246	0	0	325	246
WBL	19	29	14	22	0	0	14	22
WBT	32	48	38	58	0	0	38	58
WBR	30	29	55	31	0	0	55	31

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
20	0	45	2
0	0	0	0
0	0	0	0
0	0	0	0
0	55	6	124
55	0	124	6
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

2015 Baseline	
AM	PM
3,806	3,943
397	439
1186	1,041
5	4
38	30
639	973
143	467
602	347
88	73
550	447
4	9
50	78
104	35

INTERSECTION 5

Name: Third & Evans								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	4,091	3,976	4,006	4,140	45	2	4,052	4,143
NBL	160	122	162	142	0	0	162	142
NBT	1,924	789	1,590	713	0	0	1,590	713
NBR	46	64	79	95	0	0	79	95
SBL	112	163	172	173	0	0	172	173
SBT	622	1,344	538	1,115	0	0	538	1,115
SBR	11	95	63	118	0	0	63	118
EBL	57	38	91	59	45	2	136	62
EBT	479	264	466	492	0	0	466	492
EBR	81	96	85	102	0	0	85	102
WBL	62	136	121	197	0	0	121	197
WBT	407	684	471	723	0	0	471	723
WBR	130	181	169	211	0	0	169	211

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
20	0	45	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

2015 Baseline	
AM	PM
3,837	4,469
166	182
922	561
144	157
291	192
369	657
167	164
158	102
440	948
93	115
240	319
600	801
247	271

INTERSECTION 6

Name: Cesar Chavez & Evans								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	2,683	2,832	2,709	3,002	130	130	2,839	3,132
NBL	464	500	468	530	0	0	468	530
NBT	0	0	0	0	0	0	0	0
NBR	182	293	184	311	0	0	184	311
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	0	0	0	0	0	0	0	0
EBL	0	0	0	0	0	0	0	0
EBT	794	590	802	625	124	6	926	631
EBR	599	413	605	438	0	0	605	438
WBL	245	332	247	352	0	0	247	352
WBT	399	704	403	746	6	124	409	870
WBR	0	0	0	0	0	0	0	0

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
55	0	124	6
0	0	0	0
0	0	0	0
0	55	6	124
0	0	0	0

2015 Baseline	
AM	PM
2,761	3,341
477	590
0	0
187	346
0	0
0	0
0	0
0	0
817	696
616	487
252	392
411	831
0	0

ATTACHMENT TRANS-58

INTERSECTION 7

Name: 3rd & 23rd								
Case:	Existing (2000)		2005 Baseline		Construction		2005 + Const.	
	AM	PM	AM	PM	AM	PM	AM	PM
SUM=	1,812	1,957	2,070	2,237	59	59	2,130	2,296
NBL	65	61	74	70	0	0	74	70
NBT	1,053	752	1,203	859	57	3	1,260	862
NBR	62	20	71	22	0	0	71	22
SBL	38	60	43	69	0	0	43	69
SBT	479	921	547	1,052	3	57	550	1,109
SBR	11	15	12	17	0	0	12	17
EBL	13	17	15	19	0	0	15	19
EBT	27	18	31	21	0	0	31	21
EBR	15	11	17	13	0	0	17	13
WBL	20	46	22	53	0	0	22	53
WBT	26	25	30	28	0	0	30	28
WBR	4	13	4	14	0	0	4	14

CONSTRUCTION TRAFFIC			
AM IN	AM OUT	PM IN	PM OUT
226	11	11	226
PERCENTAGES		TRIPS	
IN	OUT	AM	PM
0	0	0	0
25	0	57	3
0	0	0	0
0	0	0	0
0	25	3	57
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

2015 Baseline	
AM	PM
2,588	2,796
93	87
1,504	1,074
89	28
54	86
684	1,315
15	21
19	24
39	26
21	16
28	66
37	35
5	18

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT TRANS-62

Freeway Level of Service Calculations

CH2M HILL
 3 Hutton Center Drive
 Suite 200
 Santa Ana, CA 92707
 Phone: 714-429-2020
 E-mail:

Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2003
 Freeway/Direction: I-101
 From/To: P.M. 2.92
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	10000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2778	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2817	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2817	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

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 Suite 200
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 Phone: 714-429-2020
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Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2005
 Freeway/Direction: HIGHWAY 101
 From/To: P.M. 2.92
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	10150	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2819	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2859	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2859	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

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Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2015
 Freeway/Direction: HIGHWAY 101
 From/To: P.M. 2.92
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	10250	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2847	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2887	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2887	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

CH2M HILL
 3 Hutton Center Drive
 Suite 200
 Santa Ana, CA 92707
 Phone: 714-429-2020
 E-mail:

Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2003
 Freeway/Direction: I-280
 From/To:
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	4270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1186	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	1604	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1604	pc/h/ln
Free-flow speed, FFS	62.0	mi/h
Average passenger-car speed, S	62.0	mi/h
Number of lanes, N	3	
Density, D	25.9	pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

CH2M HILL
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 Suite 200
 Santa Ana, CA 92707
 Phone: 714-429-2020
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Fax: 714-429-2050

Operational Analysis

Analyst:
 Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2005
 Freeway/Direction: I-280
 From/To: P.M. 6.05
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	4580	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1272	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	1720	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1720	pc/h/ln
Free-flow speed, FFS	62.0	mi/h
Average passenger-car speed, S	61.8	mi/h
Number of lanes, N	3	
Density, D	27.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

CH2M HILL
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 Phone: 714-429-2020
 E-mail:

Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2015
 Freeway/Direction: I-280
 From/To: P.M. 6.05
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	4945	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1374	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	1857	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1857	pc/h/ln
Free-flow speed, FFS	62.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	30.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

CH2M HILL
 3 Hutton Center Drive
 Suite 200
 Santa Ana, CA 92707
 Phone: 714-429-2020
 E-mail:

Fax: 714-429-2050

Operational Analysis

Analyst:

Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2003
 Freeway/Direction: I-80
 From/To: P.M. 4.4
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	8600	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2389	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2422	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2422	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:
 Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2005
 Freeway/Direction: I-80
 From/To: P.M. 4.4
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELETRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	8930	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2481	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2515	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2515	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

CH2M HILL
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Fax: 714-429-2050

Operational Analysis

Analyst:
 Agency or Company: CH2M HILL
 Date Performed: 4/5/2004
 Analysis Time Period: 2015
 Freeway/Direction: I-80
 From/To: P.M. 4.4
 Jurisdiction: SAN FRANCISCO
 Analysis Year: 2004
 Description: SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Flow Inputs and Adjustments

Volume, V	9080	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2522	v
Trucks and buses	2	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.986	
Driver population factor, fp	1.00	
Flow rate, vp	2558	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	63.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2558	pc/h/ln
Free-flow speed, FFS	63.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Overall results are not computed when free-flow speed is less than 55 mph.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

Technical Area: Transmission System Engineering

Author: Mark Hesters

SFERP Author: Julie Labonte

BACKGROUND

Staff needs to identify facilities required for termination of the project and all “downstream” transmission facilities required by the interconnection of the project. The System Impact Study provided in the AFC studied the project at 209 MW and the proposed project will only produce 151.5 MW. The letter included in the AFC supplement from the California Independent System Operator (Cal-ISO) indicated PG&E will be completing a Facilities Cost Report with the plant output updated to the 151.5 MW.

DATA REQUEST

70. Provide the Facilities Study Report completed by PG&E for any interconnection for which you are seeking certification. The study or studies should, at a minimum, demonstrate conformance or non-conformance with NERC/WECC, Cal-ISO and utility reliability and planning criteria with the following provisions:

Response: An electronic copy of the Facilities Study Report is provided as Attachment TSE-70A. Attachment TSE-70B presents a March 28, 2004 letter from CA-ISO that approves the PG&E Facilities Study Report. In addition, the System Impact Study has been provided to the CEC as Appendix 5A in the AFC for the SFERP project, submitted on March 18, 2004.

71. Identify major assumptions in the base cases including imports and exports to the system, major generation including hydro, load changes in the system and queue generation.

Response: Major assumptions in the base cases are identified in the System Impact Study.

72. Analyze system for Power Flow for N-0, important N-1 and critical N-2 contingency conditions, and provide a list of pre and post project overload criteria violations.

Response: The analysis has been provided in the System Impact Study.

73. Analyze system for Transient Stability and Post-transient voltage conditions under critical N-1 and N-2 contingencies, and provide related plots, switching data and a list of voltage criteria violations.

Response: The analysis has been provided in the System Impact Study.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

74. Provide a Short Circuit Study Report showing fault currents at important substation buses with and without the new generation and respective breaker interrupting ratings in a table side by side.

Response: Please review Applicant's Clarifications, Reservations of Objections and Notices of Need for Additional time in Response to June 4 Data Request filed on June 14, 2004. The Facilities Study Report does not include a short circuit study because no short circuit problems or issues were identified with the much larger Potrero 7 interconnection; thus none are expected for the smaller SFERP (the Facility Study for the SFERP assumed that Potrero 7 would not be in place). Further, the facilities studies assume that the SFERP replaces the 165 MW Hunters Point 4 and, as such, does not increase generation above current system levels. If PG&E performs a short circuit analysis in the future and informs the City of the fact, the City will work with PG&E and the CEC to make the analysis available to the CEC.

75. Identify the reliability and planning criteria utilized to determine the criteria violations.

Response: The reliability and planning criteria used has been provided in the System Impact Study.

76. Provide a list of contingencies evaluated for each study.

Response: The list of contingencies evaluated have been provided in the System Impact Study.

77. List mitigation measures considered and those selected for all criteria violations.

Response: The mitigation measures considered have been provided in the System Impact Study and those selected are provided in the Facilities Study Report (Attachment TSE-70).

78. Provide power flow diagrams (MW, % loading & P. U. voltage) for base cases with and without the project. Power flow diagrams must also be provided for all N-0, N-1 and N-2 studies where overloads or voltage violations occur.

Response: The power flow diagrams have been provided in the System Impact Study.

79. Provide electronic copies of *.sav and *.drw GE PSLF and EPCL contingency and comparison files (if available).

Response: The City has been informed by PG&E that Karen Grosse of PG&E has provided copies of these files directly to the CEC.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT TSE-70A

Updated Facilities Study Report

Five copies of the Updated Facilities Study, Generation Interconnection, prepared in March 2004 have been provided to the California Energy Commission. Additional copies may be provided upon request.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-1)
DATA RESPONSES, SET 1A**

ATTACHMENT TSE-70B

**May 28, 2004 Letter Regarding San Francisco
Electric Reliability Power Project Final
Interconnection Approval**



May 28, 2004

Mr. John Vardanian
PG&E Interconnection Services
Pacific Gas and Electric Company
PO Box 770000, Mail Code B13M
San Francisco, CA 94177-0001

Subject: San Francisco Electric Reliability Power Project
Final Interconnection Approval

Dear Mr. Vardanian:

The California ISO (Cal-ISO) has reviewed the Updating Facilities Study for the San Francisco Electric Reliability Power Project (SFERPP) conducted by Pacific Gas and Electric Company (PG&E) at the request of the City and County of San Francisco (CCSF). The CCSF plans to connect its new gas turbine generating facility to PG&E's Potrero 115 kV Substation by building two overhead 2300 AL 115 kV generator tie lines, each approximately 900-feet in length. The project will install three (3) GE LM6000 gas-fired combustion turbine generators (CTGs), rated at 50.5 MW each, for a total rated output of 151.5 MW. The generator auxiliary load is estimated at 5.4 MW, and the net output of the project will be 145.1 MW. The commercial operation date for the project is December 2006, with testing anticipated to begin in November 2006.

System Impact Studies (SIS) were previously performed for this project, evaluating different plant configurations interconnecting to Potrero 115 kV Substation, including the interconnection of four (4) CTGs and one (1) steam turbine, for a net output of 199.8 MW, as well as the interconnection of three (3) CTGs, for a net output of 140.1 MW. The CCSF requested that PG&E conduct the SIS and Facilities Study using the following assumptions:

	Before the SFERPP	After the SFERPP
Mirant's Proposed Potrero Unit 7 Project	Is not built	Is not built
Hunters Point Unit 4	Is on-line	Is off-line
One 115 kV cable installed between Potrero & Hunters Point	Is built	Is built
San Mateo-Martin #4 60 kV to 115 kV Line Conversion Project	Is completed	Is completed
Jefferson-Martin 230 kV Cable	Is not built	Is not built

The SIS results for the SFERPP identified no adverse system impacts without the addition of Mirant's higher-queued Potrero Unit 7 Project. The SFERPP will physically occupy a portion of the site of the proposed Potrero 7 Project. If Potrero 7 were built in the future, substantial network upgrades would be required and the CCSF would be responsible for the cost of mitigating the system impacts caused by its lower-queued SFERPP, based on the Cal-ISO Tariff Amendment 39 New Generator Interconnection Policy.

Due to emissions and environmental reasons, the CCSF was ultimately required to limit the size of the SFERPP to three (3) CTGs. As a result of the plant configuration change, the CCSF submitted a new interconnection application to the Cal-ISO for the SFERPP. The Application was declared complete on March 12, 2004, with an effective queue position and queue date of February 25, 2004, which is when the Application was received by the ISO. An Updating System Impact Study was not required by PG&E or the Cal-ISO, since no adverse system impacts were expected, based on the results of the prior System Impact Studies performed for this Project.

A Facilities Study (FS) had previously been performed for the SFERPP for the four CTG configuration. An Updating Facilities Study (UFS) was conducted to more accurately reflect the costs and work scope required to connect the new three CTG configuration for the SFERPP to Potrero Substation. In addition, the UFS included a Supplemental SIS to identify the system impacts caused by the SFERPP, and required mitigation measures, if Mirant's Potrero 7 Project were built. The following assumptions were used to conduct the Supplemental SIS:

	Before the SFERPP	After the SFERPP
Mirant's Proposed Potrero Unit 7 Project	Is built	Is built
Hunters Point Unit 4	Is off-line	Is off-line
Three 115 kV cables installed between Potrero & Hunters Point	Are built	Are built
San Mateo-Martin #4 60 kV to 115 kV Line Conversion Project	Is completed	Is completed
Jefferson-Martin 230 kV Cable	Is built	Is built

The 2007 Summer Peak base case was used to perform power flow analysis to evaluate the transmission system impacts caused by the SFERPP, assuming Mirant's higher-queued Potrero 7 Project were built. To stress the system, modeling of the Bay Area load was based on a 1-in-10 year heat wave load level in the San Francisco/Peninsula area.

Results of the Supplemental SIS, as part of the Updating Facilities Study (UFS)

The Supplemental SIS identified both normal and contingency overloads that require network upgrades to mitigate the overloaded facilities. With Mirant's Potrero 7 Project built and on-line, the addition of the SFERPP would cause six (N-0) overloads with all facilities in service.

Overloaded Transmission Facility	Pre-Project (%)	Post-Project (%)	% Change
Hunters Point-Martin #1 115 kV Line	78	105	27 %
Hunters Point-Martin #3 115 kV Line	74	100	26 %
Potrero-Martin #2 115 kV Line (Bayshore 2-Martin)	85	112	27 %
Potrero-Martin #2 115 kV Line (Potrero-Bayshore 2)	91	117	26 %
Potrero-Martin #1 115 kV Line (Bayshore 1-Martin)	91	106	15 %
Potrero-Martin #1 115 kV Line (Potrero-Bayshore 1)	85	110	25 %

Normal (N-0) Overloads – 2007 Summer Peak

The addition of the SFERPP would cause or aggravate Category B (N-1) overloads on eleven transmission facilities during 2007 Summer Peak conditions. Overloads caused by the addition of the SFERPP are highlighted in the table below.

Overloaded Transmission Facility	Contingency	Pre-Project (%)	Post-Project (%)	% Change
Hunters Point-Martin #1 115 kV Line	Hunters Point-Martin #3 115 kV Line	110	149	39 %
	Potrero-Martin #1 115 kV Line	109	146	37 %
	Potrero-Martin #2 115 kV Line	107	143	36 %
	Larkin 115/12 kV Banks 1, 3, and 5	93	120	27 %
	Larkin 115/12 kV Banks 2, 4, and 6	92	119	27 %
Hunters Point-Martin #3 115 kV Line	Hunters Point-Martin #1 115 kV Line	108	145	37 %
	Potrero-Martin #1 115 kV Line	104	139	35 %
	Potrero-Martin #2 115 kV Line	102	136	34 %
	Larkin 115/12 kV Banks 1, 3, and 5	89	115	26 %
	Larkin 115/12 kV Banks 2, 4, and 6	88	113	25 %
Potrero-Martin #2 115 kV Line (Bayshore 2-Martin)	Potrero-Martin #1 115 kV Line	116	152	36 %
	Hunters Point-Martin #1 115 kV Line	106	140	34 %
	Hunters Point-Martin #3 115 kV Line	105	138	33 %
	Larkin 115/12 kV Banks 1, 3, and 5	99	126	27 %
	Larkin 115/12 kV Banks 2, 4, and 6	98	125	27 %
	Potrero-Hunters Point #1 115 kV Line	91	119	28 %
	Potrero-Hunters Point #2 115 kV Line	91	118	27 %
	Potrero-Hunters Point #3 115 kV Line	91	118	27 %
Potrero-Martin #2 115 kV Line (Potrero-Bayshore 2)	Potrero-Martin #1 115 kV Line	122	158	36 %
	Hunters Point-Martin #1 115 kV Line	112	145	33 %
	Hunters Point-Martin #3 115 kV Line	110	144	34 %
	Larkin 115/12 kV Banks 1, 3, and 5	105	131	26 %
	Larkin 115/12 kV Banks 2, 4, and 6	103	130	27 %
	Potrero-Hunters Point #1 115 kV Line	97	124	27 %
	Potrero-Hunters Point #2 115 kV Line	96	124	28 %
	Potrero-Hunters Point #3 115 kV Line	96	124	28 %
Potrero-Martin #1 115 kV Line (Bayshore 1-Martin)	Potrero-Martin #2 115 kV Line	109	142	33 %
	Hunters Point-Martin #1 115 kV Line	101	133	32 %
	Hunters Point-Martin #3 115 kV Line	99	131	32 %
	Larkin 115/12 kV Banks 1, 3, and 5	94	119	25 %
	Larkin 115/12 kV Banks 2, 4, and 6	93	118	25 %
	Potrero-Hunters Point #1 115 kV Line	87	113	26 %
	Potrero-Hunters Point #2 115 kV Line	86	112	26 %
	Potrero-Hunters Point #3 115 kV Line	86	112	26 %
Potrero-Martin #1 115 kV Line (Potrero-Bayshore 1)	Potrero-Martin #2 115 kV Line	112	145	33 %
	Hunters Point-Martin #1 115 kV Line	104	136	32 %
	Hunters Point-Martin #3 115 kV Line	103	134	31 %
	Larkin 115/12 kV Banks 1, 3, and 5	98	123	25 %
	Larkin 115/12 kV Banks 2, 4, and 6	96	122	26 %
	Potrero-Hunters Point #1 115 kV Line	90	116	26 %
	Potrero-Hunters Point #2 115 kV Line	90	115	25 %
	Potrero-Hunters Point #3 115 kV Line	90	115	25 %
Potrero-Mission 115 kV Line	Potrero- Larkin #2 115 kV Line	100	106	6 %
San Mateo-Hillsdale Jct 60 kV Line (Beresford-Hillsdale)	Jefferson 230/60 kV Bank 1	121	122	1 %
San Mateo-Hillsdale Jct 60 kV Line (Hillsdale-Hillsdale Jct)	Jefferson 230/60 kV Bank 1	109	110	1 %
San Mateo-Hillsdale Jct 60 kV Line (San Mateo-Beresford)	Jefferson 230/60 kV Bank 1	137	138	1 %
	Cooley Landing-Stanford 60 kV Line	97	100	3 %
San Mateo 115/60 kV Bank 3	Jefferson 230/60 kV Bank 1	105	106	1 %

Category B (N-1) Contingency Overloads – 2007 Summer Peak

Category C outages were previously evaluated in the System Impact Studies (SIS) performed in the fall of 2003 for the SFERPP simulating 2005 Summer Peak and 2005 Fall Peak conditions. In addition, the SIS simulated outages described in the San Francisco Planning Criteria for the summer peak case. No Category C overloads were identified due to the addition of the SFERPP.

Dynamic Stability Studies had also been conducted using the 2005 Summer Peak case to determine whether the transmission system would remain in operating equilibrium following a system disturbance at Potrero Substation and the loss of an adjacent 115 kV transmission facility. The results of the dynamic stability studies indicated that the SFERPP would have no adverse impact on the stable operation of the transmission system.

The Short Circuit Analysis and Substation Evaluation performed by PG&E in the prior SIS for the SFERPP identified no circuit breakers or equipment that would require replacement due to overstress or overload as a result of adding the SFERPP. Prior analysis has also shown that when both the proposed 619 MW Potrero 7 Project and the SFERPP are added to the system model, numerous circuit breakers are overstressed in the study area. Should the higher-queued Potrero 7 Project proceed with its plans to interconnect in the future, PG&E would need to perform an updated Short Circuit Analysis to identify the overstressed breakers and substation equipment that would require upgrading or replacement, and determine the CCSF's cost responsibility for the required reliability upgrades, due to the addition of the SFERPP.

Included in the Supplemental SIS is the mitigation plan for the normal and Category B overloads which are described in detail in the UFS results and are provided on the following page. After modeling the required network upgrades in the powerflow case, one normal overload and one Category B overload were identified, and are shown below.

Overloaded Transmission Facility	Pre-Project (%)	Post-Project (%)	% Change
Eastshore 230/115 kV Bank 1	97	100	3 %

Normal Overload After Mitigation Plan Implemented – 2007 Summer Peak Mitigated Case

The Eastshore Transformer Bank 1 normal overload is due to modeling the 600 MW Russell City Energy Center, a proposed generation project that is currently on-hold. If the Russell City Energy Center were built, it would be responsible for adding a new 230/115 kV transformer bank at Eastshore Substation, which would eliminate the identified normal overload.

Overloaded Transmission Facility	Contingency	Pre-Project (%)	Post-Project (%)	% Change
Potrero-Mission 115 kV Line	Potrero-Larkin #2 115 kV Line	100	103	3 %

Category B (N-1) Overload After Mitigation Plan Implemented – 2007 Summer Peak Mitigated Case

To mitigate the Category B overload shown above, PG&E would re-evaluate the emergency rating of the 115 kV cable from Potrero to Mission Substations, should Mirant's Potrero 7 Project proceed to commercial operation.

The work scope and cost of the interconnection facilities and proposed mitigation plan are provided in the results of the Updating Facilities Study (UFS).

Results of the Updating Facilities Study (UFS)

The UFS determined that the work scope for direct assignment facilities to connect the SFERPP to the grid includes installing two new 115 kV circuit breakers at Potrero Substation for the interconnection of the project's two new generator tie lines, the installation of protection and telecommunications equipment at Potrero Substation, as well as SCADA, EMS, and fiber termination equipment at the SFERPP Switchyard. PG&E estimated the cost of the direct assignment facilities to interconnect the SFERPP to the grid at \$2.7 million, exclusive of ITCC¹, or \$3.3 million with ITCC.

The network upgrade costs and work scope required two components to be evaluated:

- Network upgrade costs and work scope when the SFERPP comes on-line in December 2006, prior to Mirant's higher-queued Potrero 7 Project coming on-line.
- Additional network upgrade costs for the CCSF's SFERPP and work scope required should Mirant's Potrero 7 Project come on-line in the future.

The cost for network upgrades (i.e., transmission facility additions or upgrades beyond the point of interconnection) without Mirant's Potrero 7 Project is estimated at \$0.8 million, exclusive of ITCC, or \$0.98 million with ITCC. The work scope includes upgrading the San Francisco RAS (Remedial Action Scheme) at various PG&E substation locations to accommodate the SFERPP and installing bus selector switches and related work at Potrero Substation. The tentative construction schedule is 18-months from the signing of the Generator Special Facilities Agreement (GSFA). PG&E also indicates in the UFS that if the CPUC requires PG&E to obtain a Permit to Construct (PTC), the project could require an additional year or two to complete, and an additional \$1 million to \$2 million could be added to the project cost.

If Mirant's Potrero 7 Project were built in the future, and the SFERPP continued to remain in operation, the Supplemental SIS determined the following additional network upgrades would be required to relieve local congestion, and would be the cost responsibility of the CCSF's lower-queued SFERPP:

- The installation of two new 6-mile Potrero-Martin 115 kV underground cables with a normal rating of 250 MVA each to establish the Potrero-Martin #3 (AH-3) and Potrero-Martin #4 (AH-4) circuits.
- The installation of two new 115 kV circuit breakers with switches and associated protection and telecommunications equipment at both Potrero and Martin 115 kV Substations to establish the two new 115 kV underground circuits from Potrero to Martin.
- Proceed with PG&E capacity project T655 to install a second 230/60 kV transformer bank at Jefferson Substation.
- Evaluate and establish a new emergency cable rating for the Potrero-Mission 115 kV underground (u/g) cable.
- With the two new 115 u/g cables from Potrero to Martin Substations, one of the two cables between Hunters Point and Potrero Substations, originally required for the Potrero 7 Project, would no longer be needed.

¹ ITCC = Income Tax Component of Contribution

The UFS determined that with Mirant's Potrero 7 Project on-line, the additional network upgrade costs for the CCSF's SFERPP would be approximately \$78 million, exclusive of ITCC, or \$95.2 million with ITCC.

Cal-ISO Approval for Interconnection

Based on the results of the Updating Facilities Study and Supplemental SIS, the Cal-ISO is granting final interconnection approval to connect the SFERPP to the Cal-ISO controlled grid.

Should you have any questions about the review of this study, please call Donna Jordan at (916) 351-2339 (djordan@caiso.com) or me at (916) 351-4464 (jmiller@caiso.com).

Sincerely,

Original signed by

Jeffrey Miller
Regional Transmission Manager

cc:

Mr. Ralph Hollenbacher
Manager, Power Development
City and County of San Francisco, SFPUC
1155 Market St., 4th Floor
San Francisco, CA 94103

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Armando Perez (ISO)
Rich Cashdollar (ISO)
Gary Brown (ISO)
John Cardoza (ISO)

Ty Larson (ISO via e-mail)
Tracy Wang (ISO via e-mail)
Tom French (ISO via e-mail)
Grid Planning (via e-mail)

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

(04-AFC-1)

DATA RESPONSES, SET 1A

Technical Area: Visual Resources

Author: Mark R. Hamblin and William Walters

SFERP Authors: Wendy Haydon, Steve Brock and Gary Rubenstein (visible water vapor plume)

BACKGROUND

The proposed project requires the demolition of the former Station A turbine building (105 feet in height approx.) and two other buildings currently on the site. These buildings currently block light originating from the operating Potrero Power Plant (e.g., lighting from the Unit 3 structure [125 feet height] and stack [305 feet height]) that may become visible to the Potrero Hill neighborhood with the new project. The elevated perspective of this neighborhood facilitates visual access to the proposed project site.

DATA REQUEST

80. Please describe the extent to which nighttime lighting originating from the existing Potrero Power Plant would become visible to the Potrero Hill neighborhood with the operation of the proposed project.

Response: Mirant reports that they turn on all lights at the existing Potrero Power Plant at night for operability and security reasons. Existing nighttime lighting at the Potrero Power Plant (determined from a nighttime site visit) is minimal and includes:

- White lights at various heights throughout the 120-foot-high Unit 3 boiler structure (on each floor of the unit)
- Red nonflashing lights at approximately 150 feet above grade on the 305-foot-high Unit 3 exhaust stack and red flashing lights atop the exhaust stack
- Approximately 6 pole-mounted amber street lights within the site
- Two amber lights on the west side of the machine shop building
- Three amber lights (total) on the south sides of Units 4, 5, and 6, which are approximately 10 feet above ground
- One white pole-mounted light approximately 17 feet above ground near Units 4, 5, and 6
- Downward-directed white lights on a small building to the east of Station A and south of Units 4, 5, and 6 – the lights are on the east side of the small building (the side of the building that faces away from Potrero Hill)

When the Station A building at the project site is removed, views of the Potrero Power Plant site from the Potrero Hill neighborhood would become less obstructed. As a result, the 7 pole-mounted lights; the 3 lights near Units 4, 5, and 6; and the 2 lights on the machine shop building would become visible.

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Currently, lighting from the upper two-thirds of Unit 3 boiler structure are visible from the Potrero Hill neighborhood. With the removal of Station A, the lighting on the lower one-third of the structure would also be visible to that neighborhood.

There would be no change to what is currently visible to the Potrero Hill neighborhood on the 305-foot-high stack (2 sets of red lights midway and at the top of the exhaust stack).

81. Please describe existing off-site night lighting in the immediate vicinity of the project site that is visible to the Potrero Hill neighborhood.

Response: From the Potrero Hill neighborhood, many sources of night lighting are visible, and include the following sources:

- Lights from urban land uses from the east side of the Bay (both near the water and at higher elevations on the hills)
- Street lights from streets in the vicinity of the project site
- Lights on the Potrero Power Plant site 305-foot-high stack (at the top and midway up the exhaust stack)
- Lights on the upper two-thirds of Unit 3 boiler structure at the Potrero Plant site
- Lights within the existing substation located immediately west of the project site
- Lights emanating from within the multi-story buildings that are located in the vicinity of the project site
- Exterior lights on the buildings in the vicinity of the project site and in areas adjacent to the buildings
- Lights from watercraft on the Bay in the vicinity of the project site
- Lights from vehicles traveling on I-280

Existing night lighting, as seen from the Potrero Hill neighborhood, is depicted in a nighttime photo referred to as Figure 17A of the Final Staff Assessment (dated February 13, 2002) for the Potrero Power Plant Unit 7 Project (00-AFC-4). That figure shows many of the light sources described above, and may be helpful in understanding the extent of the visible light in a nighttime setting from that neighborhood.

BACKGROUND

AFC page 4-4 states “the City consulted extensively about the SFERP with community members and hosted several public meetings to introduce and discuss the project. Input from these meetings and from Supervisor Maxwell, who represents the Potrero, Hunters Point and Dogpatch neighborhoods, provided the basis for certain features of the SFERP designed to reduce impacts on the community.”

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DATA REQUEST

82. Please explain any visual sensitive area(s) and visual concern(s) that were made known to you by community members regarding the proposed project.

Response: As indicated in the responses to the March 29, 2004 CEC Data Adequacy comments regarding visual resources, to date, the City has met repeatedly with the surrounding community. Four meetings of note include:

- Potrero Neighborhood House on August 28, 2003 (approximately 50 people in attendance)
- San Francisco Department of Public Health, September 4, 2003 (approximately 35 people in attendance)
- Southeast Community Center, September 9, 2003 (approximately 45 people in attendance)
- California College of Arts & Crafts on September 20, 2003 (approximately 35 people in attendance)

At these meetings, the City discussed the project in general terms and answered questions. In the general discussion, the City specifically discussed the SFERP as being smaller and less bulky than Mirant's proposed Potrero Unit 7 power plant. At those meetings, participants did not address visual resources (including visually sensitive areas and visual concerns). Based on input from the community meetings, the location of the project, which was originally proposed for Pier 70, was shifted to the site that is now being considered.

BACKGROUND

Location number 5 on Figure 8.4-4 in the AFC visual section identifies a proposed or recently approved housing project. The Figure 8.4-4 legend identifies this location in the 1300 block of Illinois Street. A housing project at this location would be approximately 450 feet from the proposed project site.

DATA REQUEST

83. Please explain the status of the housing project at this location.

Response: This project has not been approved by the City of San Francisco. Based on information provided by planning staff at the City of San Francisco, the application for residential development has been withdrawn and there is no active proposal for development at this site. (pers. comm, M. Smith, 6/23/04).

BACKGROUND

Location number 3 on Figure 8.4-4 in the AFC visual section identifies a proposed or recently approved housing project. The Figure 8.4-4 legend identifies this location in the 3000 block of 3rd Street. A housing project at this location would be

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approximately 1300 feet from the proposed construction laydown area for the project.

DATA REQUEST

84. Please explain the status of the housing project at this location.

Response: The successful application for development at this site consisted of an approximately 235,000 square foot industrial facility rather than a housing project. The existing land uses onsite have subsequently been demolished and the proposed industrial facility constructed.

BACKGROUND

Staff plans to perform a plume frequency modeling analysis for the cooling tower. Staff will require additional project data to complete this analysis.

DATA REQUEST

85. Please summarize for the cooling tower the conditions that affect vapor plume formation including cooling tower heat rejection, exhaust temperature, and exhaust mass flow rate. Please provide values to complete the table and additional data as necessary for staff to be able to determine how the heat rejection load varies with ambient conditions and also determine at what ambient conditions only one cell will be in operation.

Parameter	Cooling Tower Exhausts		
Number of Cells	2 cells		
Cell Height*	12.76 meters (~41.9 feet)		
Cell Diameter*	3.96 meters (13 feet)		
Tower Housing Length*	15.24 meters (50 feet)		
Tower Housing Width*	4.27 meters (14 feet)		
Ambient Temperature*	36°F	59°F	80°F
Ambient Relative Humidity			
Number of Cells in Operation			
Heat Rejection (MW/hr)			
Exhaust Temperature (°F)			
Exhaust Flow Rate (lb/hr)			

*Stack dimensions from AFC Appendix 8.1B Table 8.1B-4. Tower length and width are from AFC Appendix 8.1B Table 8.1B-1. Example ambient temperatures are from turbine operating case data shown in Appendix 8.1A Table 8.1A-1.

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Response: Table VR-85 was completed to show performance at the different operating conditions. The 50 and 52 °F points bracket the operating condition when the chillers would cease (or begin) to operate. The unit MMBtu/hr refers to 1 million Btu per hour.

TABLE VR-85
Conditions that affect vapor plume formation

Parameter	Cooling Tower Exhausts				
Number of Cells	2 cells				
Cell Height*	12.76 meters (~41.9 feet)				
Cell Diameter*	3.96 meters (13 feet)				
Tower Housing Length*	15.24 meters (50 feet)				
Tower Housing Width*	4.27 meters (14 feet)				
Ambient Temperature*	36°F	50°F	52°F	59°F	80°F
Ambient Relative Humidity	81	60	60	60	36
Number of Cells in Operation	2	2	2	2	2
Heat Rejection (MMBtu/hr)	2.66	2.66	6.41	13.46	38.98
Exhaust Temperature (°F)	37F	46.4F	51.4F	62F	84.2F
Exhaust Flow Rate (lb/hr)	2,047,150	1,999,950	1,976,550	1,924,925	1,807,550

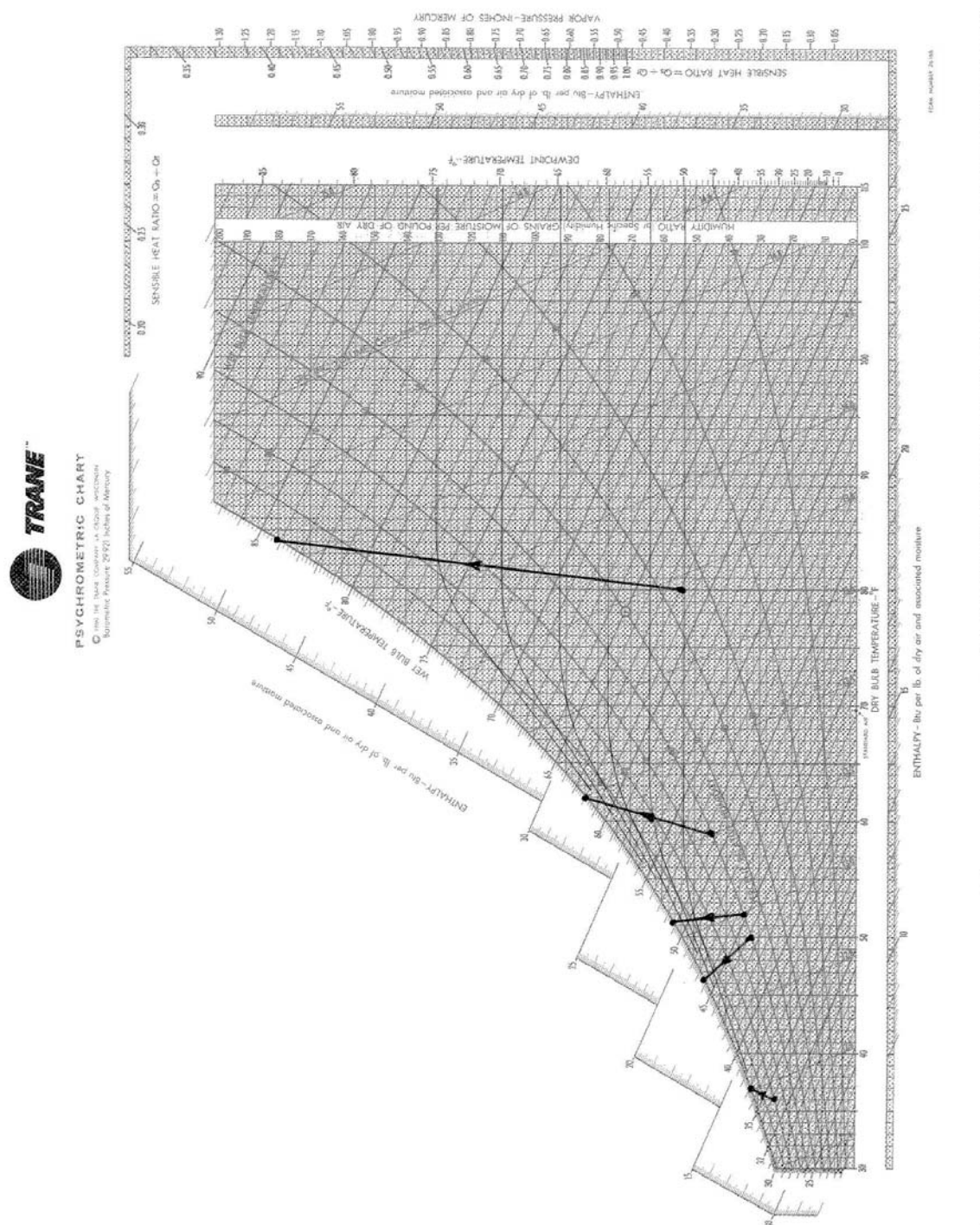
Unfortunately, the vendor program used to predict the cooling tower performance does not have the option to operate only one cell. Single cell operation for the chillers off expected operating points would raise the exhaust temperature slightly.

86. Additional combinations of temperature and relative humidity or curves showing heat rejection vs. ambient condition, if provided by the applicant, will be used to more accurately represent the cooling tower exhaust conditions. Please include appropriate design safety margins for the heat rejection, exhaust flow rate and exhaust temperature.

Response: In addition to the data presented in Data Response #85, the vendor has supplied Attachment VR-86, a psychometric chart indicating the performance within the cooling tower under the conditions contained in Table VR-85.

87. Please provide the cooling tower manufacturer and model number information and a fogging frequency curve from the cooling tower vendor, if available.

Response: The preliminary selection (for conceptual development of the plant) of a cooling vendor was Evapco. Their cooling tower model D-25C was used for physical sizing considerations as well as performance and emission calculations. No site-specific fogging curve is available from Evapco.



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Technical Area: Waste Management

Author: Alvin Greenberg, Ph.D.

SFERP Author: Karen Parker

BACKGROUND

More information is necessary regarding available waste disposal facilities in order to assess potential waste-related impacts from SFERP.

DATA REQUEST

88. Regarding the City's exclusive contract with the Altamont landfill, does the City have the right to use other landfills for Class II and III waste disposal?

Response: The City's exclusive agreement with the Altamont landfill covers only nonhazardous solid waste, as defined by 27 CCR § 20220 and "inert waste" as defined by 27 CCR §20230. Waste that does not fall into these two categories is not subject to the exclusive agreement.

89. Please clarify which of the disposal facilities identified in AFC Table 8.13-4 the City plans to use once the contract with the Altamont Landfill expires in approximately 2010.

Response: The City is conducting a national search for additional landfill capacity in anticipation of the expiration of the agreement with the Altamont landfill. The search for a properly permitted landfill with the appropriate capacity is being performed in accordance with the City's procurement requirements. Table 8.13-4 provides a list of nearby permitted landfills with significant remaining capacity that could be qualified candidates to fill the City's future needs. Prior to the conclusion of its procurement process, the City will not know which landfill(s) will be used after the contract with the Altamont Landfill expires.

90. Please provide the total weight (in tons per year) and volume (in cubic yards per year) of hazardous waste that will be generated during operations of the SFERP (listed in AFC Table 8.13-3), and please discuss whether or not there will be existing treatment and or disposal facilities that will be able to handle these wastes beyond the year 2021 (when Clean Harbors' Buttonwillow Landfill is scheduled for closure).

Response: The majority of the hazardous waste that will be generated during operation of SFERP will be recycled. Used oil, oil filters, oily rags, and oil sorbents will be picked up by an oil recycler such as Evergreen Oil. Spent catalyst units from the SCR system will be returned to the manufacturer for recycling. The only waste streams that may be shipped to a Class I facility for disposal are catalyst units that cannot be recycled by the manufacturer (if any) and any cooling tower sludge that is hazardous (usually cooling tower sludge is not hazardous). Should the cooling

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tower sludge be hazardous, approximately 200 pounds per year will be disposed of as hazardous waste (0.1 ton per year).

According to Clean Harbors' Facility Compliance Manager, Terry Davis, the Buttonwillow facility will not reach capacity until about 2040 at current disposal rates. In addition, Chemical Waste Management is currently in the process of permitting an additional 15 million cubic yards of capacity at its Kettleman Hills facility (Yarbrough, 2004).

BACKGROUND

Staff needs additional information in order to assess impacts from soil excavation during construction of the proposed SFERP.

DATA REQUEST

91. Please provide a copy of the Phase II ESA for the Potrero site conducted by Fluor Daniel-GTI (FD-GTI 1998) and the addendum (FD-GTI 1998).

Response: Five copies of the Phase II Environmental Site Assessment, Pacific Gas and Electric Company, Potrero Power Plant, San Francisco, California, August 1998 and the Phase II Environmental Site Assessment Addendum Pacific Gas and Electric Company Potrero Power Plant San Francisco, California, September 1998 have been provided to the CEC as Attachment WM-91.

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ATTACHMENT WM-91

Phase II Environmental Site Assessment

Five copies on CD-ROM of the Phase II Environmental Site Assessment and the Phase II Environmental Site Assessment Addendum prepared by Fluor Daniel GTI have been provided to the California Energy Commission. Copies of these documents on CD-ROM will be provided to others upon request.